TOUR COMPLETION REPORT

Marshall Plan (MTM) Study Tour

Food Processing Equipment Industry

for

Kharkiv, Ukraine

July 03 - July 23, 2000

USAID Grant #121-G-00-99-00728-00

Center for Economic Initiatives (CEI)

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Food Processing Equipment Industry Study Tour
Executive Overview

This Management, Technology and Marketing (MTM) Productivity Study Tour program for Kharkiv, Ukraine consists of five study tours. This report describes Tour #3 for the food processing equipment industry subsector.

The purpose of the program is to give rise to a rapid and visible increase in living standards for the Ukrainian population as a whole by introducing key Ukrainian managers in key industrial subsectors to modern management, technology and marketing methods in the U.S. The Center for Economic Initiatives (CEI) selected three food processing subsectors (Bakery; Meat and Dairy; Fruit and Vegetable) and two other subsectors (Food Processing Equipment; Building and Construction) in order to introduce the benefits of this Marshall Plan type technical assistance program to Ukraine. All of these subsectors produce products that are basic to the needs of the Ukrainian population.

The major achievements of the program for the Ukrainian companies were:

1. New and modified products were identified that can easily be added to existing lines without significant investment;
2. An awareness and appreciation of new management techniques;
3. Many productivity changes were learned that will increase product shelf life and reduce costs;
6 A greater appreciation of the role of advertising, marketing, merchandising and distribution;
7 New products and equipment they can purchase from the U.S.
8 A greater openness and awareness of changes they can make in their own firms and industries.

The study tour group included 15 high-level industry participants. Under the direction of the Tour Director, the group of 15 visited 25 organizations over a five-state area. The size of the group was economically most efficient. It would have been difficult to arrange visits for a group of 20 or more, while a smaller group would have increased the cost per participant. Due to budget limitations, the tour area was restricted to Ohio, Indiana, Illinois, Michigan and Kentucky. This was quite adequate for food processing equipment industries.

The sites visited were carefully selected to meet the diverse needs of the group. Since the tour group represented different sizes of businesses and profile, each participant visited some plants that were within their area of interest. Moreover, there was much to be learned on every visit since management, marketing and distribution were common to all.

The host company determined the length of each visit. In almost all cases, the visits were scheduled to last three hours and were planned for the morning or afternoon. At each site there was a short introduction by management followed by a tour of the facilities. A question and answer period followed. In almost all cases, this was an extremely lively session and extended far beyond the initial schedule. The U.S. hosts were extremely generous with their time and information. Were it not for the need to maintain schedules, many visits would have been significantly longer. The enthusiasm of the participants rubbed off on the host companies and many offered to host future programs.

During their stay in the U.S., the group visited 6 food packaging equipment manufacturing plant of various sizes, 3 food processing equipment manufacturers; 2 facilities for canning technology, 1 large vegetable processing operation, 1 frozen pizza plant, 1 large national condiment plant, 1 international food outlet, 1 large flour and wheat milling operation, 1 used bakery equipment supplier, 1 animal feed plant, 1 candy manufacturing plant, 1 food research and development facility, 1 edible oil processing plant, 1 corn syrup manufacturing operation 1 potato chips manufacturing facility, 1 large national bakery and 1 merchandising solution provider. In addition, they heard lectures from experts on various subjects. A description of the individual host organizations is included in this report. As a result, the participants were able to get a very broad view of their industry.

The length of the tour, 20 days, appeared to be just about right. Time was needed for the new concepts to be fully understood and appreciated. The participants would probably not have been able to be away for a longer period of time.

Just as previous tours, when the group first arrived in the U.S., they had various fixed ideas about conducting their business. Although the participants were looking for new ideas, they were not necessarily open to new ideas. By the end of the tour, this attitude had completely changed. Most were eager to return and try out new ideas and products. The evolution in thinking was remarkable.

One of the frequently asked questions was "How do the Americans make the products at such a low cost?" Almost every host company discussed the importance of increased volume to drive down costs. This implied a greater need for effective marketing and for specialization. Both were exactly the opposite of the business thinking in Ukraine where there is little advertising and each firm struggles to diversify into as many different product lines and even different industries.

A surprising degree of bonding took place between the tour members. At the conclusion of the tour most agreed to meet again and possibly to form an association. Several were exploring business arrangements, not only among themselves, but with the U.S. companies they visited.

Some of the participants expressed serious interest in American products and reproducing similar equipment back home. The Tour Consultant has agreed to facilitate communications between Ukraine and the American companies.

At the conclusion of the study tour the group was interviewed in depth to record what they had learned and to measure the potential impact of the tour on their individual firms. CEI was pleased to learn that all had concrete plans to introduce productivity improvements to reduce their costs of production, add new products to their lines and institute management changes. These findings are recorded in the Evaluation by Tour Members included in this report.

This Marshall Plan type equipment study tour was deemed a great success by all the participants and by CEI. Only by seeing for themselves were these industry leaders able to learn new techniques and discover new products they could apply or reproduce back in their firms without the need of large new investments.

Food Processing Equipment Industry Study Tour
Program Narrative

2.0 INTRODUCTION

2.1 Overview

During the period of July 03 - 23, a group of 15 participants (9 men, 6 women) belonging to 14 different organizations related to food processing equipment industries from the Kharkiv region visited Cincinnati, Ohio and other cities in Ohio, Indiana, Michigan, Kentucky and Illinois as a part of a 20 day study tour of their related industry. Vasyl Sulima was designated as Leader of the Ukrainian Group. USAID Grant #121-G-99-00728-00 to the CEI financed the tour made available. This was the third of five tours financed under this grant.

The tour was under the overall direction and leadership of Leland M. Cole, CEI's President. CEI appointed Tour Director Dr. Belal U. Siddique worked out the detailed program with host enterprises, selection arrangements, implementation and accompanying the group to various sites. Everyone felt the program was a great success.

2.2 Background

After W.W.II, America helped rebuild Western Europe through the Marshall Plan Program. European economies had been damaged and destroyed, the productivity of industry was low, and standards of living had plummeted. Through the Marshall Plan Program, not only did the US provide grain, steel and other essential raw materials, but also provided technical assistance on a large scale. More than 24,000 Europeans visited the US to learn about the modern ways in which industry operated.

The former Soviet Union (FSU), including Ukraine, today suffers from a scarcity of cost-oriented management and marketing capabilities. Managers focus on production and new equipment, rather than on market-oriented tasks. It is essential that Ukrainian management understand that marketing and productivity enhancements are central to the improvement of their living standards and availability of low-cost consumer goods. The Center for Economic Initiatives, (CEI) based in Cincinnati, applied for and received a grant from USAID to bring high level managers from the food processing equipment industry of the Kharkiv region in Ukraine to the US for training. This program is similar to the original Marshall Plan Technical Assistance Program.

The total funded program will consist of five tour groups. The first tour was for the Bread and Bakery subsector. The second tour was for Meat and Dairy, the third was for Food Processing Equipment manufacturing, the fourth for Construction and the fifth for Fruit and Vegetables.

Most participating managers have never been outside the former Soviet Union (FSU) and have virtually no experience with the workings of a market economy. The task was to help them learn new techniques that they could re-apply in Ukraine. Towards that end, CEI arranged a program that took the Ukrainian managers to processing plants, suppliers, government agencies and associations in Ohio, Indiana, Michigan, Kentucky and Illinois. These are agriculturally and industrially developed states with good food processing industries from which to select suitable host organizations.

During their visits to these US organizations, the Ukrainians are able to learn improved techniques in production, marketing, and management. These skills will make the Ukrainian companies more

responsive to the needs of the Ukrainian domestic market, and more attractive for trade and investment with U.S. and other foreign enterprises.

2.3 Program Implementation

The initial study tour group visited 25 organizations attended 3 seminars and various social functions spread over 13 cities/towns located in 5 states. We could not have been more pleased with the reception and hospitality given by host organizations. High-level U.S. officials made themselves available for extensive discussions and were genuinely interested in providing study tour members with all the information requested. Several had done independent research on Ukraine before arrival of the group.

3.0 SUMMARY EVALUATION OF PARTICIPATING TEAM

Although from diversified industry backgrounds, everyone picked up significant positive experiences from the tour. It was an active tour group with a voracious appetite for learning new things. At times, the group was late for the next appointment because question and answer sessions were active and lengthy. Sometimes 2-3 hours per plant visit was not enough time.

In general, tour members were cooperative and positive minded. They participated actively in group discussions and asked a great many good questions not only about the industry but also about the U.S. in general. They took notes, and an enormous amount of photographs and material back home. Initially, we had a few skeptics as usual, but by the end of the tour they were genuinely converted to true optimists. The total experience of seeing American industry and culture close-up over a period of 20 days made a significant difference to many members' thought processes and perception versus what they had earlier heard about America.

4.0 MISCELLANEOUS TOPICS / COMMENTS

4.1 The tour group had excellent interaction with the Tour Director and other CEI members. Information was provided to the maximum on all possible topics.

4.2 In most of the plants the group visited, technology was better than that used in Ukraine. Major differences were the methodology, management, organization and the culture of running an enterprise.

4.3 Participants were shown simple Bug Zappers (Ultra Violet Door Lights) that are used in almost all food related plants to catch bugs. Many were interested to know various methods used in USA to catch rodents in and around food plants. Many thought Ukrainian food losses to rodents each year were significant.

4.4 In a related industry, many members thought their heating costs, energy waste and loss were higher than the U.S. average.

4.5 Formal Training Certificates were handed out to all participants upon completion of the tour at the final dinner reception.

4.6 The participants were reminded that after their return to Ukraine, CEI would be pleased to answer questions and gather additional information they may request. It was suggested that e-mail would be the best way to communicate between the two countries.

4.7 The tour participants brought a number of gifts from Ukraine that they gave to host organizations, consultants and others.

5.0 SUMMARY CONCLUSION / POSITIVE FINDINGS OF THE PROJECT

Judging from the comments of tour participants, the experience was extremely positive and worthwhile. Many new ideas for replication were gained, not only in production, but in marketing, distribution and administration as well. This will, CEI believes, help lift the fortunes of these companies who must operate in a very difficult Ukrainian economic environment. This can only help to increase the living standards of the Ukrainian population.

We were also greatly encouraged by the bonding that took place between tour members who found they could trust one another. There appears to be a genuine interest in working together in the future. They plan to establish an association, and we believe this organization can have a beneficial effect on the entire industry.

A key objective of the program is the dissemination within Ukraine of the information learned. CEI stressed this throughout the tour, and we believe tour participants are truly dedicated to seeing this come about. We will follow-up during the post-tour visit to Kharkiv of CEI representation.

6.0 PARTICIPANT SUGGESTED TOUR PROGRAM IMPROVEMENTS

6.1 2-3 types of professionals from each industry category should be included: such as technology, marketing, management etc. (Some participants suggested that fewer professionals be included. Others felt the balance was just right.)
6.2 To affect any policy level change in Ukrainian food processing equipment manufacturing industry, oblast level officials should be exposed to this type of program.
6.3 A group consisting of distributors and transportation specialists could be organized.
6.4 Internships for management, marketing, and advertising students from Kharkiv University and other Business Schools could be organized.
6.5 A program could be undertaken to help develop packaging experts in Ukraine.

7.0 SUMMARY DESCRIPTION OF MAIN PROGRAM ACTIVITIES

The following comments provide additional information on each of the activities and organizations visited.

Tuesday, July 04, 2000

Daniel H. McKinney, CEI volunteer, Cincinnati, Ohio

The taxation lecture was an overview of taxation in the USA in terms of the revenues it raises from various classes of taxpayers and encourages private capital development through wealth accumulation of various types. Focus was on political, social and economic policies that drive tax policies and legislative design. Attention was directed to how the system promotes private capital accumulation by exempting certain types of assets and wealth from taxation, with special emphasis on small business capital encouragement through depreciation. Special rules applicable to the equipment industry were examined, particularly the "percentage of completion" laws that permit or require reporting of project income at various states of completion. He also discussed pending U.S. legislation designed to encourage the accumulation of private wealth to create new economic activity. This wealth would be used to fund private retirement funds for the use of the aging population. He also discussed the political and social tensions between the philosophies of capitalism and socialism.

Bruce Vaillancourt: American Business Practices Talk, Cincinnati, Ohio

This presentation covered many of the basic business practices which the Ukrainians would observe on their visits. It covered such areas as dress codes stressing U.S. government safety requirements on the shop floor. Since company visits would entail a tour around the shop floor, the Ukrainians were instructed that the rules which apply to workers would also apply to them. Employee relations in American businesses was also covered stressing performance linked to pay incentives, and the value of cross-functional teams in meeting productivity goals and problem solving. A typical American business organization chart was presented to all the delegates and stimulated a lot of discussion. It was suggested that the Ukrainian companies request a copy of the organization chart from any company that closely resembled their own as they were on tour to help facilitate a better understanding of management organization. The presentation concluded with a discussion of the proprietary information which companies maintain a high degree of confidentiality over and how some of the companies would be toured may or may not be willing to share all that data with the tour group.

Wednesday, July 05, 2000

B&J Machinery, Cincinnati, Ohio

James English, VP Sales and Sandra Gugliotta, Sales Engineer received the group and discussed the company's activities. The company has been in business since 1968 rebuilding old production machines. The company sells packaging machinery, with special focus on filling, capping and labeling. The company is the sole distributor of labeling and filler machines for the Italian company **P.E. Labelers** in North, Central and South America. They also sell AROL Closure Systems. The company's activities attracted great interest among the group members.

At this time, most of the company's activities are centered on three industries: a) Hot Fill Juice, b) Distilled Spirits, and c) Up-scale labeling (for such products as peaches). The company has a

booth at the upcoming P&MMI Trade Show in Chicago. They have supplied some equipment to Russia and negotiation is underway on another large project.

LaRosa Frozen Pizza, Cincinnati, Ohio

This is a very clean and modern frozen pizza plant that supplies many local area pizza facilities. The plant and modern equipment fascinated the Ukrainians. The facility has expanded a lot and now has two major continuous process conveyor spiral rack chambers. One chamber is steam heated for dough maturing and the other deep frozen for matured dough to freeze and pack. The dough mixing is a batch process while the pizza crust manufacturing is continuous process. Apart from the technological side, the very idea of frozen dough transport appealed to the group. The group asked many questions at this facility. It was concluded that stainless steel sieving conveyer belts are now extremely cost prohibitive in Ukraine. As a result, the spiral chamber racks could not be made at a reasonable price. Hence the group felt that batch technology was now more appropriate in Ukraine.

Thursday, July 06, 2000

PPG Industries, Milford, Ohio

PPG is a global maker of coatings, flat glass, continuous-strand fiberglass, industrial and specialty chemicals. PPG based in Pittsburgh, PA has more than 100 production facilities and employs more than 32,000 people worldwide. Ninety five thousand shareholders, including approximately 25,000 employees and retirees, own the company.

Founded in 1883 as the Pittsburgh Plate Glass Company, PPG was the first commercially successful plate glass manufacturer in the USA. PPG entered the chemicals business in 1899, expanded into paints in 1900 and fiberglass in 1952. Spurred by product diversification and a growing global presence, the company's name was changed to PPG Industries, Inc. in 1968.

PPG is the world's No. 1 producer of automotive finishes. Two out of three new cars on the road today contain PPG coatings. PPG is a world leader in packaging coatings technology, including barrier coatings for plastic bottles to help beverages maintain their carbonation.

The facility at Milford deals with research and development and the sales and marketing operations for the food coatings used in various cans. Annual PPG sales in the USA are about $100 million (of which $35 million comes from Food Coatings). Global sales are $300 million ($200 million from Food and Aerosols).

The coatings that are developed and used are: 1) Epoxy Phenolic Coating, 2) Oleo Resins (pet food, beans, meat products), 3) Vinyl (modified with acrylic), 4) Water based (acrylic emulsion epoxy).

One of their major clients is Ball Container Co., which the group would later be visiting in Columbus. The group had a tour of the research and development facility and saw how coatings and polymers are developed and tested.

Portion Pac, Mason, Ohio

Karen Manteufel, Sales Manager for Special Markets, met the group. Portion Pac, Inc. (PPI) was founded in 1973 by four entrepreneurs with over 50 years of total experience in the portion control food industry. PPI is the largest supplier of portion control food products in the USA. Heinz

bought the company in 1989, but they have their own recipes apart from Heinz. They do contract packing for KFC, Burger King, Wendy's, some large chains, and small restaurants. PPI also has their own brands: Taste Pleasers Gourmet, Madeira Farms, PPI, Chatsworth, Sweet Portion, Pitch'r pak, Salsa Del Sol, etc. Over 20 million packages are made at this facility per day. About 350 types and sizes of food products are packed under PPI-owned labels including: ketchup, mustard and other condiments, sauces, salad dressings, jams and jellies, cheese sauce and dry products such as sugar substitute, salt, pepper and creamer. Products are packaged in various size poly and foil packets and cups. The manufacturing facility has 254,000 square feet, and each plant includes state of the art PPI-designed and built packaging equipment and extensive warehousing and unloading space. The factory works 2 shifts (8 hours each), 5 days a week and the minimum wage is around $12/hr. Typical distribution of costs is: packaging material (60%) and product (40%). Annual sales are $294 million and typical profit is 13% of sales.

This plant was of enormous interest to the entire group. They felt that the items produced here could be reproduced in Ukraine but capital costs seemed prohibitively high at this time. They appreciated the light construction of the warehouse facility and the quality of insulation used.

Friday, July 07, 2000

Tetra Rex, Buffalo Grove, Illinois

Tetra Rex is the US subsidiary of the parent organization Tetra Pak. Tetra Pak is a multi-product company comprised of three divisions: Carton, Plastics and processing. Tetra Pak provides integrated processing and packaging solutions. "A package should save more than it costs". This was the tenet of the founder of Tetra Pak, Dr. Ruben Rausing. Today, all of the packaging and processing systems are developed, produced and marketed with the aim of adding more value than cost. Tetra Pak is no longer synonymous with just liquid food cartons. They supply hundreds of different types of packaging from cartons to PET bottles. The company operates in 156 countries, have 66 packaging material plant and 12 developing centers. They are the global leaders with experience in providing aseptic technology for liquid packaging. The basic principles for providing packaging solution are that it protects the product well, be suitable for a distributor, be easy for the retailer to handle and be recyclable. Tetra Rex specifically deals with folded packaging concepts. The gable-top fiber package is bottom-sealed and then filled. It is then top-sealed during the packaging process. It features 5th and 6th panels that eliminate product contact with raw paper edges. Package volumes range from 118 to 4732 ml. The major advantages are consumer convenience, flexible and easy to operate.

Dairy products, beverages and other liquid foods are prepared industrially on the same principles as in the home kitchen. The major packaging issues are preserving for storage, transforming into an edible form or combining different ingredients into a tasty food. In an industrial scenario raw material are much larger and require continuous processing instead of batch cooking as at home. In continuous processing, parameters such as temperature, pressure and pH can be accurately measured and the entire process can be automatically controlled. High-performance key components form the basis of all Tetra Pak modules. A wide range of proven, easily accessible components is available for any production requirement, including pumps, valves and heat exchangers. All components are available within Tetra Pak.

Tetra Pak has designed a broad range of processing modules to suit specific applications in the dairy, beverage and liquid food industries. These plug-in modules have a standardized design that allows for customization. All equipment is assembled on a common stainless steel frame for ease

of installation and with small space requirements. The modules are tested in the workshop before delivery. After the utility pipes and the food to be filled are added, the equipment is ready for commissioning. A Tetra Pak production line is a matching system of processing technologies that utilizes Tetra Laval Group modules and components and proven equipment from sub-suppliers. Tetra Pak supplies field proven processing modules that can be used for stand alone tasks or for integration to form the solution required at consecutive processing steps, thereby creating a wide range of dedicated production lines. Tetra Pak is the only company in the world that can offer its customers total solutions from the intake of raw materials to delivery of the end product. During the last 40 years, Tetra Pak has engineered and installed more than 1,000 food and dairy production systems worldwide.

APV Crepaco, Chicago, Illinois

APV is an international process engineering company serving food and beverage industries and many other industrial sectors. They deal with the manufacture of components and units to various design to the design of complete plants. They provide innovative engineering products, process solutions and services. Siebe Plc acquired APV in 1997. In 1999, Siebe and BTR merged to form a $15 billion engineering and control system company called Invensys (British). This global organization now deals with sales, engineering, project management and lifetime services. APV Americas is part of the worldwide APV Group owned by Invensys. APV Americas deal with sales, engineering and manufacturing related to heat exchangers, fluid handling, unit systems and separation. However, because of the larger merger involving Invensys, the company has been involved in various activities that include drives, motors, automation, SCADA (Supervisory Control & Data Acquisition), processing know-how, information system, valves, pumps, spray drying technology etc. The North American operation has sales of about $250 million. It employs 600 people: 300 in manufacturing, 50 in sales, 100 design/installation engineer and 150 various other product specialists including pumps. There are 6 regional offices in the USA.

APV provides first class service to its customers offering in depth of process knowledge, provision of customized solutions, a wide product range and stringent quality control. They have built three infant formula plants in Russia. They have also built a fruit and vegetable baby food plant in Uzbekistan.

APV Core technologies are: Drying Technology (spray drying, spin flash drying, fluid bed drying, cooling and agglomeration), Evaporation and Distillation (plate and tubular evaporators, steam stripping, solvent recovery and high vacuum distillation), Membrane Filtration (reverse osmosis, nanofiltration, microfiltration and ultrafiltration), Mixing and Blending (systems for wide range selectors, customized solutions for specialized needs), Fluid Handling (hygienic pumps, valves and fittings, de-aeration, carbonation and CIP systems), Homogenization (cell disruption for biotechnology, low fat and fat substitutes), Forming and Extrusion (bakery, confectionery, ice cream and snacks industries), Heating and Cooling (a wide range of heat transfer systems resulting in high quality food and beverage products, technological innovation like microwave) etc.

The product applications are for beverage, dairy, cheese, processed foods, baked products, confectionery and snacks etc.

Monday, July 10, 2000

Electronic Liquid Fillers (ELF), LaPorte, Indiana

ELF is dedicated to developing customized solutions to fill particular needs through the design, manufacture, sales, service and installation of specialized packaging machinery. The ELF team is organized around the single goal installing packaging equipment that suits product, application, schedule and budget. The company has the ability to manufacture and distribute packaging equipment on a global scale with customer of all sizes.

Important priorities to assess the system needs and complete production lines are: Productivity (combination of options to achieve optimum productivity level), Versatility (number of different products and containers accommodated in a single line), Cost-effectiveness (return-on-investment), Facility Considerations (factors requiring modification of weight, height, length or overall size or shape of system), Product Requirements (product or container requiring special handling, contact parts or other considerations), Changeover and Clean-out Efficiency (minimize product changeovers and system downtimes), Turnaround (system delivery time). Once a thorough understanding of packaging needs and challenges are understood, experts oversee every step of the equipment design and manufacture. They supply single machine or a fully integrated system.

The systems offered are: Unscrambling (automatic bottle unscramblers, loading turntables, automatic loading tables, conveyor loading shelves), Filling (gravity, pressure gravity, pump, tri-fillers, molten, vacuum, overflow, piston, auger, table top, fully automatic, semi-automatic), Conveying/container handling/cleaning (stainless steel, HDPE, sanitary, cooling conveyors, ionized air rinsers, orbital water rinsers), Capping/sealing (fully automatic and semi-automatic screw cappers, snap cappers, chuck cappers, hand-held units, induction sealers, neck banders, tamper evident), Labeling (Stepper-drive pressure sensitive, spot, top/bottom, wrap, panel, coding -hot stamp & inkjet, hazardous location), Accumulation (turntables, case packers, shrink wrappers) etc.

Dunkley International, Kalamazoo, Michigan

Dunkley International has been in business for 100 years and manufactures high-speed fruit processing equipment based on optical equipment and computer - a new approach to machine integration. High speed sorting is done by color, size and shape using line scan and area scan cameras. Precision inspection is done using the most advanced sensors, line-scan cameras, high-resolution area scan cameras and CCD color cameras. The company has the capability of doing any kind of process control, factory automation and material handling design with their advanced manufacturing and fabrication facility.

Dunkley High Speed Sorting Machines can handle and sort anything from food particles to small industrial parts at a blistering pace of 2,000 pieces per second with 100% accuracy. Machine harvested blueberries require painstaking manual labor to separate unripe berries from the product stream. Dunkley High Speed Sorter removes unacceptable green and red berries from blueberries automatically. As blueberries leave the conveyor belt at 600 ft./min., a high-speed camera scans the products in mid-air. The Dunkley Vision System processes the scanned berry images and controls the 110 high-speed air ejectors used to remove the unacceptable berries from the product stream. The total time frame available from the camera scan line to the high-speed air ejectors is only 50 milliseconds.

This is a customer driven industry that takes into consideration the most comprehensive and cost effective solutions possible. They have extensive experience in the machine vision industry, coupled with a dedicated engineering team and fully equipped manufacturing facility allowing

them to take complete project responsibility. This includes feasibility study, system design including material handling equipment and process control, software development, system fabrication, installation, operator training and on-going system support.

While Dunkley systems engineers are capable of integrating most commercially available vision systems, they also configure, market and integrate their own systems. With **Dunkley Vision Systems** (DVS) and **Dunkley Integration Services** (DIS), they offer "one-stop shopping" for all kind of machine vision applications.

They offer complete turnkey systems with standard PC technology and off-the-shelf components for high performance and low cost solutions for both high end and low end applications.

Systems choices offered include **Basic System** (DVS100) accepting all standard black and white and color area scan area, **Mid-level System** (DVS200) accepting standard and non-standard area scan and with analogue or digital line scan cameras, **High Performance Systems** (DVS300) accepting all camera sources, on-board high performance vision processor, scaleable to solve even the most demanding real time applications. They use both Windows NT and 95 operating systems. Vision software features pattern matching, blob analysis, gauging, morphology, edge detection, Region of Interest (ROI), and other comprehensive image processing tools.

The company also makes Cherry Processing Systems, a French Fry Machine and a Apple Slicer. A Cherry Pitter (Stoner) Machine has existed for over 60 years and can process up to 1 tons of cherries per hour. Cherries are fed into the hopper from a water flume transportation system or conveyor belt. The vibration action of the hopper and the finely adjusted hopper brush produce a good fill of the cylinder pockets with only one cherry to each pocket. The pitted (stoned) cherries fall onto a conveyor belt for transport to the packaging operation. The pits are flushed out of the pit tube by a stream of water. The machines will handle tart, brine and sweet cherries.

Tuesday, July 11, 2000

Buurma Farms Inc., Willard, Ohio

Frank H. Buurma, a Dutch immigrant, founded this farm in 1896. The first farm consisted of only 4 acres and celery was their only crop. The farm has grown to 2460 acres with over 25 vegetables grown and 60 different types of value added products manufactured and sold. Most acreage sees multiple cropping each year. A 1660-acre portion of the land is in Michigan and in 800 acres in Ohio. 500 of the 800 Ohio acres are muck, a black nutrient rich soil, that is 35% to 65% organic matter. The other 300 Ohio acres are upland soil, which is a mixture of muck and clay. At peak season, the Ohio farm has 450 employees and the Michigan farm has 150 employees.

Major facilities are described below:

COOLERS

They have two large and three small coolers. The two large coolers are 8531 sq. ft and 6510 sq. ft. All coolers put together have the cooling capacity of 100 truckloads. Coolers are kept at a constant temperature of 36 degrees. Indicator lights are used to show which cooling systems are on and working. Humidifiers add moisture back into the air and keep the product looking wet and fresh.

DRY COOLER & RECEIVING DOCK

The dry cooler is where they store all dry goods and vegetables, including squash, cucumbers, peppers and anything else that doesn't need to be wet. The receiving dock is where they receive produce from neighboring farms and from their Michigan farm.

ONION, LETTUCE AND CELERY LINES

The onion line is a very busy and productive line. They average 1500 boxes of onions per day. The roots and tops of the onions are trimmed on the packing line. Buurma engineers designed this line like most others. The onion crew also packs leeks. There may be up to 350 boxes of leeks per week. The lettuce line is used to wash the muck off the lettuce when it is excessively dirty. Bibb lettuce, Boston lettuce, endive and escarole are packed on this line. The remaining lettuce is packed in the field. The celery line packs two small hearts in each plastic bag.

HYDROCOOLERS

Hydrocoolers are a necessity at Buurma Farms, both in Ohio and Michigan. They are used to take from the field vegetables that are at ambient temperature and cool them to 36 degrees. Pouring water at 36 degrees over the vegetables does this. This process prolongs the shelf life of the product. Buurma Farms has three hydrocoolers. One is a double hydrocooler that is 24 feet long and 10 feet wide. The other two are single hydrocoolers that are 24 feet long and 5 feet wide. It takes about 20 minutes for each skid of vegetables to go through the hydrocooler. From there, the vegetables are taken into a cooler for storage.

ICE LINE/ICE MAKING MACHINE

The ice machine runs 24 hours a day during the summer, producing 60 tons of ice each day. Each box of produce consumes 10 pounds of ice in the cooling process. The ice machine works by having a coolant run through large tubes, with ice made on both the inside and outside of the tubes. After the ice is made, the coolant stops and heat is run throughout the tube so the ice falls off the tube into a bin. The entire process takes ten minutes, nine to make the ice and one minute to harvest. Every 10 minutes, 800 pounds of ice are made. Slush ice is made in a mixing tank by mixing ice and water in a 50-50 mixture. This mixture is then pumped into boxes of produce to be iced. Like hydrocooling, slush icing adds days to the shelf life of items such as greens, onions, radishes and parsley.

BUNCH RADISH LINE

Bunch radishes are washed and packed immediately after being pulled from the field. Then they are hydrocooled and slush-iced. At the peak of the season, they pack between 1200 and 1500 boxes of bunch radishes per day. Every year, 2000 acres of radishes are planted. There are two sizes of bunch radishes. One is a small bunch, which has 10-12 radishes per bunch, and the other is a big or double bunch, which has 18-20 radishes per bunch. The radish line also washes and packs greens, such as cilantro and spinach. They can do 700 boxes of spinach a day. All packing lines use fresh well water as a final rinse.

GRADING ROOM

Radishes and beets are spread onto large conveyor belts (the grader) and carefully inspected by employees. Spots, cracks, marks and other defects are all reasons to reject vegetable. Only the finest produce is selected. At the end of the grader is a sizing machine that separates the extra large radishes from the others. These jumbo radishes, packed in 10, 25, and 40-pound bags, are usually sold to processing plants.

BOX ROOM

The box room is where boxes are made - a simple but essential part of the packing process. The boxes are sent down a shoot into both the packing room and bunch radish lines. There are also boxes for the onion line which are put on rotating hangers. They also have boxes, baskets and crates for the lettuces.

PACKING ROOM

The packing room consists of all new equipment that was installed in 1996 by their own personnel. These machines have the capacity to bag 13,000 pounds of radishes per hour in either 6 oz. or 8 oz. bags. There are 14 heads on each machine. The computer weighs each head and finds which combination of four or five heads make up the right number of ounces for each bag of radishes. These computerized scales make it possible for each bag to be accurate within the weight of a single radish. In 1997 they installed value added packaging for their consumer packed radishes by way of a re-sealable bag. Case sealing equipment with hot melt glue closes the boxes. The display boxes are over wrapped with plastic film and heat shrunk. It takes a radish approximately 3 minutes to travel through the grading and packing rooms.

STACKING ROOM

Once radishes are packaged, they are sent by conveyor to a cooled stacking room. This room needs to be cooled because it is important to minimize the time that radishes are not in a cooled environment.

LOADING DOCK

The loading dock is the final stage of production. Produce is put into trucks by forklifts and top iced is added to provide adequate moisture during shipping. Over 100 truckloads per week are shipped during the peak of the season. Products are shipped all over the country. Two thirds of the U.S. population is within 24 hours of this farm, guaranteeing the finest fresh vegetables.

Some facts are given below:

- Record seed-to-harvest for radishes is 18 days.
- The farm irrigates from a 75-acre reservoir that hold 385,000,000 gallons of water.
- Each year the farm uses 30 tons of radish seed and 250 tons of lime to control pH.
- Over 1000 tons of fertilizers are used.
- There are over 100 licensed farm vehicles not including 100 farm tractors and wagons.

The experiences gained from this large agricultural operation are very relevant to the growing and marketing of produce and vegetables in general in Ukraine.

Amber Milling, Huron, Ohio

Amber Milling is a subsidiary of the **Cenex Harvest States** - a company headquartered in Inver Grove Heights, Minnesota, a St. Paul suburb. Cenex was founded in 1931 by 25 local cooperatives with a total investment of $525 million. Harvest States resulted from a 1983 merger between two regional cooperatives, Farmers Union Grain Terminal Association and the Oregon based North Pacific Grain Growers. In 1998, Cenex Inc. and Harvest States Cooperatives merged to form Cenex Harvest States Cooperatives.

Cenex brings to the new organization 1,400 local (federated) petroleum and farm supply cooperatives, and Harvest brings approximately 540 local cooperatives and 44,000 direct farmer-members. The cooperative's unified membership extends from the Upper Midwest, across the Northern, Central and Southern Plains states to the Pacific Northwest.

Cenex Harvest States is a fully integrated agricultural cooperative whose operations cover the farm-to-market spectrum, increasing the value of member commodities through products and services that include agronomy, petroleum, grain marketing, feeds, wheat milling, oilseed processing and refining, and food manufacturing and distribution. Cenex Harvest States also offers its farmers and elevator members a wide range of business services that help them as they grow, market and move agricultural commodities. The regional cooperative employs 6,000 people, including 800 at its Inver Grove Heights, Minnesota, headquarters. Net income for fiscal

1999 (ending August 31, 1999) was $86 million. Net sales for fiscal 1999 were $6.3 billion. Cash returns to members-owners in 1999 based on the fiscal 1998 earnings totaled $68 million.

Cooperative alliances have helped strengthen the reputation of the growing farmer network as a quality grain supplier. Out of this growth came Harvest States Milling, formerly known as Amber Milling. A milling facility located in Huron, Ohio was built in 1990 with production capacity of 15,000 cwt/24 hours. They have a 2 million bushel grain storage capability. They produce semolina, durum flour, bakery flour and special flour blends. Buhler supplied the milling equipment. They use the Norfolk Southern railroad services for their transportation. Finished products are available bagged or in bulk. The parent company has five more similar milling facilities and operations in Florida, Minnesota, Pennsylvania, Texas and Wisconsin.

Wednesday, July 12, 2000

FEMC, Cleveland, Ohio

Food Equipment Manufacturing Corporation (FEMC) is one of the top two companies in its industry with high quality products. In terms of sales volume they are within the top ten companies. They have annual sales of about $ 4-8 millions. They have 30 employees including accounting, engineering and sales. The production department has seven working teams. They have supplied equipment to Benaul (Russia), Canada, Mexico, Australia and Europe. They provide a 5-10% commission to their agents. They require a 30-40% down payment for all purchase orders.

The company's goal is to keep current with today's ever changing and demanding customer needs. Regardless of company's size, FEMC can tailor a system to any level of sophistication. They build every component and system to exceed customer needs as well as industry and USDA standards. They make it with stainless steel construction and the best precision engineering skills the industry has to offer. They make various innovative packaging systems. These include: Fill, Seal, Denest, Convey, Pump, Hood, Crimp or Cap.

The products manufactured are: Universal Screw Denester (Plastic and Aluminum containers), Universal Stand Alone Denester (mounted on a mobile frame), Vacuum Denester (Aluminum, paperboard and plastic containers do not meet necessary specification to be denested), Eccentric Peel Denester (denests containers not of uniform size), Packaging Conveyors (for automatic filling, volumetric dispensing), Cavity Carrier Conveyors (used to support the container flange for sealing applications), Angular Dial Filler (manages dry foods), Piston Filler (accurately dispenses a variety of liquid and viscous products), Flat Dial Filler (without a transfer system), Slide Plate Filler (managing dry foods for multi-line filling), Roller Drum Heat Seal (utilizes two heated rollers to seal listock to a container in a continuous motion), Platen Head Heat Seal (utilizes a heated aluminum head), Vacuum and Gas Flush Heat Seal (encapsulates the container in a chamber while vacuum, flush and seal occur), Portable Heat Seal, Adjustable Side Belt Transfer, Overhead Transfer, Automatic Capping System, PLC/Program Logical Controls, MTMI/Man To Machine Interface, VFD/Variable Frequency Drives, Servo Motors, Stepper Motors etc.

Gerber & Sons, Baltic, Ohio

The company manufactures all kinds of animal feed for local regional animal farm consumption. The products are meant for hog, horse and cow farms. The company in essence is a flour and grain milling operation for animal feed. The source of the raw material is also regional. Some of the farmers give raw materials and grain to be prepared and processed as animal feed. The

company gets some share out of this production sharing arrangement with local farmers. The company sells products locally in bulk or bagged.

They have a mid-sized production facility containing corn grinding and milling facility, mixing tanks and storage for molasses. There are also separate storage facilities for other ingredients such as phosphate, pro soy, lime, mixing salt, copper sulfate, fish meal, vitamin etc.

The company also has a large finished products storage area for shipment and a nearby retail shop.

Thursday, July 13, 2000

Anthony-Thomas Candy, Inc., Columbus, Ohio

This company is a family owned business established by a Greek immigrant Anthony Zanetos in 1926. His son Thomas joined him eventually forming the Anthony-Thomas Candy Company in 1952. Four generation of Zanetos candy makers have contributed to the company's success. Today, Anthony-Thomas makes millions of pounds of candy every year. The company moved to its present location 5 years ago. The company has several candy shops in Columbus, and has no national brands. They produce many types of fund raising chocolates and candies for schools and various other charities. They also supply airline orders and do major sub-contracting work for Hershey's and Nestle.

They have six modern, sophisticated production lines in an ultra modern efficient plant. The plant has visitors tour programs, particularly for the school children. The plant has been built accordingly to accommodate such tour groups. There are overhead visitors gallery so the working atmosphere is not disturbed and the visitors can an have unhindered look at the candy production facility. The Ukrainian equipment specialists, and others took note of the technology, packing units, hygiene and cleanliness in the plant. Each member of the group was presented with a box of candy at the end of the tour.

Friday, July 14, 2000

Borden Co., Columbus, Ohio

Gale Borden 150 formed the Borden Company years ago. Borden developed the Sweetened Condensed Milk, Eagle Brand. Borden had a large national dairy product line with brands such as Cremona and Eagle. These have since been sold. It developed the first pasta food with no requirement for refrigeration. The food operation make up one tenth of Borden's total business. Other Borden operations are: glue (Elmer Glue), packaging, chemicals and Corning ware.

In the food sector, the company thrust is: to provide shelf stable meal solutions (pasta and sauce), to keep the number one position in premium sauce production and to maintain their number one position in the dry soup and bouillon market.

In 1993 KKR (a financial group) took over Borden and divided the company into number of different companies, which are not listed in any stock exchange. The shares of the company are distributed between KKR (90%) and Key Managers (10%). In 1997 the Borden Food research and development facility was moved to its present location. The company R&D employees designed the facility where there are no closed offices. Eighty two people work in this facility. These are food scientists, engineers, packaging experts as well as the quality control, market research and

consumer response departments. There is a 1-800 telephone number for every product and the consumer response group handles complaints.

Stockholders need not be consulted to get product launch approval. A piece of the company belongs to the employee. They have international operations in 22 countries. However, food operations are mainly in North America and Italy. The tour group visited the food tasting laboratory, the market research laboratories (where focus group activity is conducted), the shelf life testing labs and the pilot plant area. To be profitable, pasta production has to be a 24 hours 7 days a week operation.

AC Humko, Columbus, Ohio

AC Humko is a US subsidiary of Associated British Foods (ABF), a $7 billion international food industry giant. They are recognized worldwide for product innovations in vegetable shortening, liquid shortening, emulsifiers, spray-dried creamers and non-dairy cheese. It is a company that sells food ingredient products to all three segments of the American food industry: food processing, retail products and food service. As a result of recent growth, AC Humko has increased its product mix to include (in addition to the oil-based products) rice, cake mixes and pie filling. AC Humko is a technology based selling organization with the manufacturing flexibility to deliver what the customer needs. The company is driven by technology, customer service, manufacturing flexibility and superior quality.

AC Humko's specialty oils and ingredients incorporate nutritional benefits and functional properties. The various products produced are: confectionery fats and high stability oils; salad and cooking oil and stearines; fluid baking shortenings and margarines; frying shortening and emulsifiers; no-trans shortening and rice products; shortening triglycerides; non-dairy creamers and cheese alternatives and bases.

AC Humko possesses the patented and proprietary technology for bead, dry blend, spray chill, spray dry, flake and powder for a wide range of food ingredients. For years, the food processing trade has turned to custom formulating and processing capabilities to enhance the quality and value of the products, to offer laborsaving efficiency in production and to improve overall profitability.

The facility in Columbus processes all kinds of oil, but the bulk of it is Soya. The plant receives raw unprocessed oil and has filtration, heat curing, hydrogenation facilities and large tank farm for refined product storage. The plant is fully automated and was built from sophisticated Alfa Laval equipment. Since transportation cost are very high and EPA regulations very stringent regarding the use of coal vs. gas for heating, this plant will be shut down in the next year.

Saturday, July 15, 2000

Jungle Jim's Marketing Inc., Fairfield, Ohio

The group visited a large International Grocery Complex with virtually all foods on sale from all over the world. The store also has a large bakery section that makes many types of bread in-house. The experience was very interesting for the food equipment group watching various small food processing equipment in use.

Monday, July 17, 2000

Dupps Co., Germantown, Ohio

The Dupps Company is privately held. The company is a world-class competitor in the design and manufacture of evaporation and liquid/solid separation systems and equipment with a significant market share in each segment. The Dupps Company is in the business of designing, manufacturing, installing and servicing equipment and systems to meet the evaporation and liquid/solid separation needs of their industrial market segments. They have a very efficient manufacturing base.

The company can handle specific process engineering needs by providing a complete turnkey processing facility or a retrofitted upgrade to existing equipment. Using computer assisted engineering, design, and production planning, they streamline the process of taking the product or system needed from concept to equipment delivery.

The company constructs equipment in their modern plant with manufacturing operations that include machining, fabrication, assembly and a complete electrical control shop. Advanced manufacturing equipment at Dupps ranges from CNC milling and drilling, turning and boring machines to automatic flame and plasma cutting equipment, hydraulic shears and press brakes. It is all backed by a lifting capacity of up to 400 tons plus several types of welding including arc, MIG, TIG, and submerged arc systems along with powered welding gantries. Computerized production and inventory control keeps up-to-the minute track of costs, work in progress and compliance with delivery schedules to help the job completed on time and on budget.

To help assure timely delivery of Dupps products, the company has its own railroad siding that reaches right into the plant, with own locomotive and rail cars and several miles of track to the main line. To ensure fast, dependable service and minimal downtime, the company offers a full time staff of highly trained professionals, a fleet of trucks offering regular part shuttles to many North American customers and an enormous standard parts inventory monitored by computer and shipped within 24 hours to any location in the world.

The products offered are: New Quadpass Dryer, Material Handling Equipment, Size Reduction Equipment, Cookers/Dryers, Hydrolyzors, Evaporator System, Screw Presses, Process Control, Continuous Cocoa Butter System and Mechanical Catch Basin.

The Dupps Company designs, manufactures, installs and services process equipment and systems to convert animal and plant materials into finished products. Many processes require the separation of a liquid (oil, water, fat, solvent etc.) from some form of solid. The company can do turnkey projects built around new technology or new uses of established technology. These involve: Protein Recycling (Rendering), Processed Forest Products Drying, Paper Sludge Dewatering, Paper Recycling, Oilseed Processing, Grain Co-Products Recycling, Cocoa Butter Production, Solvent Recycling and Food Grade Processing.

Cargill Wet Milling & Corn Syrup, Dayton, Ohio

Cargill Foods is a recognized leader in quality processing and in food safety - two areas of critical importance to the food industry. Performance in these areas has earned the company a number of supplier awards. As a member of most major food-related trade associations, Cargill Foods is committed to serving the food industry and furthering its best practices. They have ISO 9000 certification and are process driven and customer focused. Cargill is a leader in adopting quality processes.

Over its 130 years history, Cargill has developed a unique set of core capabilities, including worldwide sourcing and trading, commodity storage and handling, transportation, processing and risk management. Cargill is a major buyer and trader of grains, oil seeds and other agricultural commodities, from cocoa to hazelnuts to palm oil, with years of experience in sourcing commodities all over the globe. The company maintains a network of 800 offices throughout North and South America, Europe, Africa and the Pacific Rim.

Cargill Foods Corn Milling turns corn, a plentiful, dependable and consistently pure resource, into a wide variety of products for the food and beverage industries. With more than 30 years of corn milling experience, the company's goal is to provide consistent, high-quality products along with an extraordinary level of service. Cargill Foods uses a wet milling process to produce sweeteners, food grade starches, citric acid products and carbon dioxide products, all for a wide variety of uses in the food and beverage industries.

In the wet milling process, shelled corn is soaked and then separated into its component parts, including corn gluten (used in feeds), corn oil, and starch. The starch is then further converted to sweeteners and other ingredients used in some of the world's favorite brands.

Products offered include Corn Sweeteners (Corn Syrup-low, intermediate and high D.E., High Fructose Corn Syrup), Corn Starches (Highly specialized - waxy, dent, or basic), Citric Acid Products (Citric Acid, Benzoates, Citrates, Sorbates), Carbon Dioxide, Erythritol (a low calorie sweetener alternative). They have five additional corn milling plants in the US.

Tuesday, July 18, 2000

Russel T. Bundy Associates Inc., Urbana, Ohio

The company began in Columbus, Ohio in 1967 with its purpose being to engage in the purchase and resale of bakery machinery and equipment. A few years later, it was relocated to Urbana, Ohio due to the need for additional space and growing demand. This move enabled the company to increase its inventory and enter into the field of machinery reconditioning and remanufacturing. The need for additional warehouse space resulted from an increased number of total plant liquidations of wholesale bakery equipment. To date, over fifty such liquidations have been conducted.

This organization is the largest used bakery equipment refurbishing facility in the world. Expertise in used equipment and bakery operations has resulted in a number of complete "turnkey" installations, wherein a client provided a site and was given a design, layout and properly sized equipment with the end result being an efficient, bakery production plant. This knowledge and background have also resulted in numerous requests throughout the industry for professional appraisals of complete plants for purposes of sale, purchase, insurance, financing etc.

The Pan-Glo division was organized in 1975 to provide timely cleaning and silicone coating service on commercial bakery pans for bakery within a 350 mile radius of the Urbana, Ohio area. The company has a huge operation where various hydraulic presses are used for large-scale manufacture of bakery forms, trays and baking pans. The success of this operation resulted in the establishment of additional Pan-Glo operations in Bethlehem, Pennsylvania; Detroit, Michigan; St. Louis, Missouri; Atlanta, Georgia; Jacksonville, Florida; Charlotte, North Carolina; Chicago, Illinois; and Worchester, Massachusetts.

In 1986, the American Pan Company (APC), a subsidiary of Russel T. Bundy Associates Inc. was formed to meet the world wide demand for new pans in the baking industry. The 1995 acquisition of a bread pan manufacturer in Pennsylvania resulted in the forming of yet another subsidiary and extension of manufacturing capabilities. Pans manufactured include sheet pans, bread pans, roll pans, muffin frames, cupcake frames, pizza pans, hoagie roll pans, cake pans, bread stick pans and baguette screens.

The owner has a unique bakery museum with many items and artifacts on display. The company also has a huge workshop and storage facility. In some limited cases, they invest money in advance to refurbish the equipment and keep them on display for sale to potential clients. The Ukrainian group was shown around the entire facility. This was a fascinating tour.

Wednesday, April 19, 2000

Combibloc, Columbus, Ohio

The company provides packaging solutions for the beverage, dairy and food industries. It offers the widest range of package sizes, filler formats, filling capabilities and opening features in the aseptic packaging industry. Founded in 1983, Combibloc Inc. traces its beginnings to PKL GmbH, established in 1958 which introduced the Combibloc aseptic carton system in 1976. In 1989, PKL and Combibloc became part of the SIG Swiss Industrial Company Holding Ltd.

Combibloc supplies aseptic carton filling systems and packaging to North, Central and South America. They were the first to provide a range of aseptic cartons from 1-2 liters. They were also the first to provide the high speed filling systems of up to 12,000 packages per hour. They also provided the first particulate filling solutions. In 1984 FDA approved aseptic packaging first for the juice products and later for dairy products. However, high and low acid products (like cream soup) are not allowed to use aseptic cartons. In the U.S., traditionally because of a very developed refrigeration systems and infrastructure, aseptic cartons are less popular than elsewhere and hence fresh dairy products are stored in HDP containers. In the U.S. there are two different juice products with market shares: various juices (100%) have a 25% market share and juice drinks (10% or less juice contents) that have a 75% market share.

The aseptic process is unrivaled in its ability to deliver liquid foods and beverages with the natural color, vivid flavor, authentic textures and nutrient values nature intended - while ensuring safety and shelf-stability. Aseptic processing sterilizes the product outsize the package, using high-temperature/short time technology which tailors the time and temperature to place the least amount of thermal stress on the product.

Combibloc's aseptic carton is a lightweight multi-layer, energy efficient example of minimal packaging that combines high-performance materials with high-performance construction and high-performance features. Each material plays an essential role. Paper (70% of the total package weight) provides stiffness and strength; polymers (25%) seal the carton liquid-tight; aluminum (5%) keeps out light and oxygen which degrades the product. The layers are bonded together on extrusion-lamination equipment in Combibloc's plant. Together, these three materials produce a carton that safeguards the high quality, aseptically produced products inside.

Aseptic processing in combination with the unique aseptic carton allows products (even traditionally perishable ones, like milk) to stay un-refrigerated and shelf-stable for months at a

time. Combibloc cartons need no refrigeration trucks, no special warehouses and no kitchen freezer storage.

Ball Container Co., Columbus, Ohio

This is a modern metal container and specialty products manufacturing plant. The plant runs 24 hours a day, 7 days a week and is a very organized collective effort depending on work crews, departments and associates. During the period of 1987-1997, the plant grew from 50,000 sq. ft to 170,000 sq. ft, employment grew from 15 to 120 associates and annual production rose from 225 million to over 1 billion cans. This is the first Ball plant in the U.S. to be ISO 9002 certified and they have maintained that certification with successful surveillance audits. This is also the first can plant in the U.S. to run commercial quantities of a reduced seam can. They have converted and upgraded Bordon tester electronics - partnered with Hyde Park Electronics.

The company maintains a high quality of production through standard operating procedures, best practices, daily conformance audits and a morning review meeting, internal audit programs, management reviews of quality systems and corrective actions, a sanitation and pest control program, and a focus on continuous improvement.

Inspection and test systems followed in the plant are maintained by: quality plans for each customer's specific products, a computer based video seam inspection system, defect classification containment and deposition procedures, a gauge calibration program and daily gauge conformance checks. Defects reported by customers are 0.0004% of volume. The quality of the product getting out of the factory is 99.9996%. The company has extensive associate training programs.

Thursday, July 20, 2000

Husman Snack Food Company, Cincinnati, Ohio

Larry Ruschman - Director of Sales met the group at the company gate. Leroy Pennekemp - Plant Manager introduced the group to his company colleagues, and gave a brief presentation on the background and history of the plant. John C. Barlage and others took the group for a plant tour. Husman produces and markets snack foods including: Potato chips, popcorn, cheese curls, cheddar cheese, barbecue and chili cheese chips for the local Cincinnati area. Husman has strong local brand allegiance, but is a small company that competes against national giants such as Frito-Lay. Some of Husman's products including pretzels and popcorn are contract manufactured by other companies but sold under the Husman brand name.

There were active question and answer sessions involving the tour group and Husman management.

Some facts about the Husman Company:

1. The firm was established by Edna and Harry Husman in 1919.
2. Sales in 1929 were $29,000. Current sales are $15 million.
3. After the original owners, the company has been sold twice (in 1958 and 1990). The present owners are from the East Coast.
4. In 1930, the automatic potato fryer could process 20 lb./hour. They now they can process 4,000 lb./hour. The units now run at 80% capacity.
5. 4 lb. of raw potatoes go to make 1 lb. of potato chips
6. The company employs 55. The management to worker ratio is 1:7
7. Basic potato chip ingredients are: Chipping Potato (Atlantic type), Oil (Cotton Seed) and salt. If the level of sugar is high, the fried potatoes tend to brown quickly.
8. Cost of Packaging: 2.5% of total costs
9. Advertising Costs: 5% (done through Radio, TV, Newspaper, shops etc.)
10. Potatoes are purchased directly or through intermediates from Florida, Iowa, Michigan and other states, depending on the time of harvest.
11. Their frying machinery is 30 years old and was purchased from Macbeth Engineering, Pennsylvania (out of business now). This machinery is very reliable, and should last for a long time.
12. Company Profit Margin: 7-8% after-tax.

The group was shown around all plant production units, including potato unloading, storage, conveyor loading, cleaning, peeling, slicing, washing/de-starching, frying, separation of smaller pieces/sieving, drum mixing of flavors/seasonings, packing and storage.
After the Plant Tour, the marketing of Husman products were explained by Larry Ruschman, who handed out an 11 page marketing fact brochure to the participants.

RA Jones, Covington, Kentucky

This company was started in 1905 by a dentist. They provide innovative packaging solutions. They have shipped more than 8,000 machines and 300 systems so far. Their customers are the top 100 consumer products companies in food, beverages, pharmaceutical and personal products, auto parts, communications and electronics. They provide high speed packing line manufacturing operations with 520 employees, speaking with on site fluency in 15 languages. The facility covers an area of 33 acres and 233,000 sq.ft. of office and manufacturing space.

The company designs and manufactures several kinds of packaging machinery - pouching, wrapping, cartooning, display packing and palletizing. Their machines are used in the food, beverage, pharmaceutical, personal products, electronics, auto parts and many other industries. Jones has manufactured machines for many of the world's largest companies and has shipped and installed machines all over the world.

Jones is well known for the long term quality and service support it provides. The company is continually broadening the scope of its products and services to improve the packaging productivity and competitiveness of its customers. The company offers total packaging solutions based on innovative concepts. They use servo mechanism technology and make extensive use of robotics. They make high speed carton and packaging equipment. Per client's requirements, they can manufacture and custom build any equipment for carton packaging. Their services range from planning and design, to the integration of packaging lines, to after-sale services and technical support. Their plant is very sophisticated with ultra modern laser precision metal cutters.

The company has $80 million in annual sales and makes about 6-8% profit margin.

The group was fascinated by this state of the art machine building plant. But the cost of buying a new packaging line is rather cost prohibitive for them at this point in time. They hope that when the economy turns around in Ukraine they could perhaps afford this equipment in the future. The Fasma representative - who is an equipment supplier, was very enthusiastic about the line of products made by this company.

Friday, July 21, 2000

Keebler Company, Cincinnati, Ohio

This is the largest bakery related plant of its kind the group has visited while in the U.S. This plant is clean and as big as two football fields. Many Ukrainians acknowledged that this is a plant of the 21st century – 6 fully automated production lines with multiple packaging facilities and a state of the art robotics storage and shipping area. A maximum amount of computer technology and automation has made this plant a virtual behemoth of a biscuit production facility in the mid-west. Nabisco is their only larger competition. The plant visit opened eyes for the Ukrainians who were amazed at the fast and large volume production. They were also very interested to learn that the production cost of biscuits was less than half the cost of the final product.

Hubert Distribution, Harrison, Ohio

This was the last organization the Ukrainians visited. Fortunately, this was the most interesting visit they will remember. This is the largest food product merchandising company in the U.S. with sales close to $ 1 billion. The company provides consulting services plus actual solutions to the art and science of merchandising. The show rooms and facilities were huge and the Ukrainians were speechless. The concepts of merchandising are new in Ukraine and seeing this facility they understood why it is so important for them to improve the product placement in a shop. They gained many new ideas from this visit.

The talk was well received by the group.

8.0 PARTICIPANTS

The following Ukrainian food processing company representatives participated in the study tour.

Extruder	Vasyl Sulima, Director General (Group Leader)
Korvet	Tetyana Afanasyeva, Deputy Director
Vostok	Ivan Byelosokhov, Director General
Ukr. Scientific Research & Design Institute	Anatoly Kogan, Chief Specialist on Commerce
Electromash	Sergiy Koylo, Deputy Chairman of the Board
Molprom	Vadim Lakiza, Director
Plant named after Frunze	Irina Pesina, Head of the Sales Department
Stankinprom	Victor Pavlenko, Deputy Director
Nargus	Irina Samuylik, Manager of International Rel.
TFK Engineering group	Alexander Sereda, Chief Engineer
Experimental Wiring Plant	Antonina Shcherbak, Deputy Director Finance
Ukr. Agro Service	Mykhaylo Shvartsman, Deputy Director Gen.
Institute of Industrial Hydraulic Drives	Svetlana Vasiltsova, Marketing Manager
Energosberezheniye	Lyubov Volokita, Director
Stankinprom	Nikolay Yemets, Head of Experimental Prod.

9.0 INPUTS PROVIDED BY CEI and OTHER ADVISORS

Leland Cole, Jim Silberman, Sam Harrell, and others provided various inputs. These included:

1. A list of possible host organizations to be contacted.
2. A detailed schedule of appointments.
3. Appointment details.
4. Changes to the tour schedule as necessary.
5. Advice to participants during the tours and at evening discussion periods.
6. Organization of seminars.
7. Organization of tours in conformance with budget allocations.

10.0. CRITERIA FOR HOST ENTERPRISE SELECTION

Host enterprises were selected so as to give the participants a broad picture of the U.S. Food Equipment Industry. Characteristics that were crucial in selecting enterprises were their ability to provide the Ukrainians: exposure to technology, distribution, transportation, marketing, advertising, and packaging, and fostering new ideas for producing and marketing new value-added products in Ukraine. When there were several choices of companies in the same industry, those selected were generally more progressive, offered a clear difference to the Ukrainians, had active management participation, were geographically dispersed, and offered exposure to large/ medium/small sized industries.

Although the group was composed of diversified specialists from the same sector industries, and hence the companies had many common aspects, the tour program benefited each participant in one way or the other.

11.0. AMERICAN HOST ENTERPRISES

1) Name of Plant: **B & J Machinery Inc.**
11560 Rockfield Court
Cincinnati, OH 45241

Phone: (513) 771-7374 **Fax:** (513) 771-3820
E-mail:

Name of Contact: Jim English, Vice President Sales
Sandra Gugliotta, Sales Engr (Tour Guide)

Tour Time: July 05, 2000 (9:00am-11:00am)

Type of Plant: Liquid Filling Equipment Manufacturers

Has the company done business internationally? Where? Yes, Russia

2) Name of Plant: **LaRosa Pizza**
5008 Gray Road (Near College Hill and Winton Place)
Cincinnati, OH 45232

Phone: (513) 542-1378/347-5670

Name of Contact: Greg Gavin, Plant Manager

Tour Time: July 05, 2000 (2:00-4:00 pm)

Type of Plant: Frozen Pizza Production.

3) Name of Plant: **PPG Industries, Inc.**
500 Techne Center Drive
Milford, OH 45150

Phone: (513) 576-3100 **Fax:** (513) 576-3053
E-mail: aluottp@ppg.com

Name of Contact: Patrick Aluotto, Manager Building and Safety
Jack Wilcox

Tour Time: July 06, 2000 (9:00 am-11am)

Type of Plant: Food processing related paper packaging.

4) Name of Plant: **Portion Pac, Inc.**
7325 Snider Road
Mason, OH 45040

Phone: (513) 459-5229 **Fax:** (513) 459-5309

E-mail: karen.manteufel@portionpac.com

Name of Contact: Karen Manteufel, Sales Manager, Special Markets

Tour Time: July 06, 2000 (2:00 pm-4:00 pm)

Type of Plant: Single serve condiments: dressings, ketchup, mustard, salt, pepper, sugar, creamers, jams and jellies, hot sauce, cheese sauce, specialty sauces.

What will be viewed at the plant that would be helpful to business in Ukraine? They supplied Aeroflot.

5) Name of Plant: **Tetra Rex Inc.**
909 Esbury Drive
Buffalo Grove, IL 60089

Phone: 800-433-2569/(847) 465-7022/465-7000 **Fax:** (847) 465-8505
E-mail: craig.witty @tetrapak.com

Name of Contact: Ms. Rocky Buencamino, Manager International Sales
Craig Witty, Sr. Director - Strategic Marketing
Manfred Reich, International Sales

Tour Time: July 07, 2000 (09:00am-11:00 am)

Type of Plant: Food Packaging, Processing and Distribution.

6) Name of Plant: **APV Crepaco.**
9525 West Bryn Mawr
Rosemont, IL 60018

Phone: (847) 678-4300 **Fax:** (847) 678-4313
E-mail: jjohnson@apv.com

Name of Contact: Ira Nedel, Sr. Director, Sales
Rick Tkaszyk (VP Sales)
Joan Johnson

Tour Time: July 07, 2000 (2:00pm-4:00 pm)

Type of Plant: Flow Process and Milk Equipment, .

7) Name of Plant: **Electronic Liquid Fillers, Inc.**
1535 South Highway 39
LaPorte, IN 46350 (Near South Bend)

Phone: (800) 328-0466/ (219) 393-5541 **Fax:** (219) 324-2884
E-mail: jimsaunders@elfmachines.com

Name of Contact: Jim Saunders, Project Manager
Mark Tarnow (Ukrainian Sales)
Mike Salyer
Rick Allegretty (President), Eric Thorgren (International Sales)

Tour Time: July 10, 2000 (9:00 am - 11am)

Type of Plant: Electronic Liquid Fillers/ Filling machines

8) Name of Plant: **Dunkley International, Inc.**
1910 Lake Street, PO Box 3037
Kalamazoo, MI 49003-3037

Phone: (616) 343-5583 **Fax:** (616) 343-5614
E-mail: ekenneway@dunkleyintl.com

Name of Contact: Ernest Kenneway, General Manager

Tour Time: July 10, 2000 (3 :00-5:00 pm)

Type of Plant: Manufacturer of food processing equipment.

9) Name of Plant: **Buurma Farms Inc.**
3909 Kok Road
Willard, OH 44890

Phone: (419) 935-6411 **Fax:** (419) 935-1918

Name of Contact: Loren Buurma, President

Tour Time: July 11, 2000 (9:00 am-11am)

Type of Plant: Fresh and Canned Fruit, fresh vegetable Processing

10) Name of Plant: **Amber Milling Co.**
41E Cleveland Road
Huron, OH 44839

Phone: (419) 433-5996 **Fax:** (419) 433-4925
E-mail: jlizzi@cenexharveststates.com

Name of Contact: John Lizzi, Plant Manager
Mike Page, Mill Manager

Tour Time: July 11, 2000 (2:00 pm- 4:00 pm)

Type of Plant: Flour and Wheat Milling Operation.

11) Name of Plant: **Food Equipment Manufacturing Corporation (FEMC)**
22201 Aurora Road
Cleveland, OH 44146-1273

Phone: (216) 663-1208 **Fax:** (216) 663-9337
E-mail: rls@femc.com

Name of Contact: Robert Sauer, President
Dan Auvil, Sales Manager

Tour Time: July 12, 2000 (10:00 am-12:00am)

Type of Plant: Packaging Systems (Cereal, dry soup packaging)

12) Name of Plant: **Gerber & Sons Inc.**
PO Box 248, 100 South Ray St.
Baltic, OH 43804 (20 miles West of Canton)

Phone: (330) 897-6011 **Fax:** (330) 897-7700

Name of Contact: Michael Gerber, President

Tour Time: July 12, 2000 (3:00-5:00 pm)

Type of Plant: Flour, grain milling and animal feed.

13) Name of Plant: **Anthony-Thomas Candy, Inc.**
1777 Arlingate Lane
Columbus, OH 43228-4114

Phone: (614) 274-8405 **Fax:** (614) 274-0019

Name of Contact: Tom Zanetos, President

Tour Time: July 13, 2000 (2:00 pm-4:00pm)

Type of Plant: Chocolate, caramels, peanut brittle, fudge and nuts

14) Name of Plant: **Borden Company Inc.**
180 East Broad Street
Columbus, OH 45215

Phone: (614) 233-3713 **Fax:** (513) 621-2414
E-mail: kabosham@bordenfoods.com

Name of Contact: Dr. Kamal Aboshamaa, VP (R&D)

Tour Time: July 14, 2000 (9:00 am-11:00 am)

Type of Plant: R&D facility (ice cream, frozen novelty, grocery items and snack foods.)

15) Name of Plant: **AC Humko**
525 West First Avenue
Columbus, OH 43216

Phone: 1-800-848-1340 / (614) 299-4114 **Fax:** (614) 297-6245

Name of Contact: Ron Simmons, Plant Manager
Michael Anastasakis, Quality Control Manager

Tour Time: July 14, 2000 (2:00 pm-4:00 pm)

Type of Plant: Edible Oil Processing Plant.

16) Name of Plant: **Jungle Jim's Marketing Inc.**
5440 Dixie Hwy
Fairfield, OH 45014

Phone: (513) 829-1919

Tour Time: July 15, 2000 (2 pm).

Type of Organization: Diversified International / Multi cultural Giant Food Store.

17) Name of Plant:

Tour Time: July 17, 2000 (2:00 pm-4pm)

Type of Plant: Wet corn milling, corn syrup and starch.

19) Name of Plant: **Russel Bundy Associates**
417 East Water Street
Urbana, OH 43078

Phone: 1-800-762-9955 **Fax:** (937) 771-3820
(937) 652-2151
E-mail: rtbundy@ctcn.net

Name of Contact: **Doug Geiser,** Vice President Sales
Russel Bundy, President

Tour Time: July 18, 2000 (3:00 pm-5:00 pm)

Type of Plant: Used and Refurbished Bakery Equipment Suppliers

20) Name of Plant: **SIG Combibloc Inc.**
4800 Roberts Road
Columbus, OH 43228

Phone: 1-800-843-2562/(614) 876-3700 **Fax:** (614) 876-3757
E-mail: ajankus@aol.com

Name of Contact: Geoff Campbell, VP Sales

Tour Time: July 19, 2000 (9:00 am-11:00 am)

Type of Plant: Aseptic Carton Filling and Packaging System.

21) Name of Plant **Ball Metal Food Container Group**
2690 Charter Street
Columbus, OH 43228

Phone: 800-688-6121/ (614) 771-9112 **Fax:** (614) 771-5340
E-mail: <glfreema@ball.com> <mjohnson@ball.com>

Name of Contact: Gordon Freeman, Plant Manager
Mike Johnson, Quality Control Manager

Tour Time: July 19, 2000 (2:00 pm-4:00 pm)

Type of Plant: Can manufacturing for food industry.

22) Name of Plant: **Husman's Snack Foods Company**

1621 Moore Street
Cincinnati, OH 45210

Phone: (513) 621-5614 (ext. 17) **Fax:** (513) 621-1478

Name of Contact: John Barlage, Quality Assurance Manager
Leroy Pennekamp, Plant Manager,
Larry Ruschman, Director of Sales

Tour Time: July 20, 2000 (9:00 am-11:00am)

Type of Plant: Potato chips, popcorn, cheese curls, cheddar cheese, barbecue and chili cheese chips.

23) Name of Plant: **RA Jones, Inc.**
2701 Crescent Spring Road
Covington, KY 41017

Phone: (606) 341-0400 **Fax:** (606) 341-0519

Name of Contact: Ms. Paula Holmes, Director of Marketing

Tour Time: July 20, 2000 (2:00 pm-4:00 pm)

Type of Plant: Sophisticated Food Packaging Machinery Manufacturer/Supplier

24) Name of Plant: **Keebler Company (Bakers)**
1 Trade Street (Mariemont)
Cincinnati, OH 45227

Phone: (513) 271-3500 (Ext. 277) **Fax:** (513) 271-3274

Name of Contact: Sharon Maul, Production Manager
Jerry Morgan, Bakery Director

Tour Time: July 21, 2000 (9:00 am-11:00 am)

Type of Plant: State of the Art Fully Automated Bakery Production and operations.

25) Name of Plant: **Hubert Distribution**
9555 Dry Fork Road
Harrison, OH 45030

Phone: (513) 367-8600/241-4385 **Fax:** (513) 367-8748

Name of Contact: Bert Kohler, President
Carlin Stamm, VP Sales
Ed Hubert, Owner
Sharon Hubert Owner

Norma Gillian

Tour Time: July 21, 2000 (2:00 pm-4:00 pm)

Type of Plant: Merchandising solutions to the Food Industry.

12.0 LECTURES/SEMINARS

12.1 July 04, 2000 Dan McKinney, Topic: Taxation in USA.
12.2 July 04, 2000 Bruce Vaillancourt, Topic: Taxation in USA.

13.0 OTHER VISITS

13.1 July 03, 2000 Kroger Supermarket in Corryville, Cincinnati, OH
13.3 July 06, 2000 Value City, Cincinnati.
13.4 July 20, 2000 Meijer Supermarket, Forest Fair

14.0 PROBLEMS ENCOUNTERED/CORRECTIVE MEASURES TAKEN

14.1 Two-way radio walkie-talkies were not used this time for plant visit, because the food plants did not allow them. During the early plant tours, members were very interested in different aspects of the plant and it was rather difficult to keep the group together. To avoid this problem in subsequent plant visits, CEI members helped keep the group together.

14.2 Timeliness and punctuality were repetitive problems with this group. They needed to be reminded occasionally about this issue in order to maintain appointments and the time schedule.

14.3 The group deposited their air tickets and passports at Vernon Manor Hotel safe to avoid any loss.

14.4 Fatigue, and some illness, was evidenced by the end of the tour. Food, culture, language, time zone, frequent exposure to chilled warehouses and sheer travel sickness caught some members off guard. However, everyone was able to attend all sessions and events.

14.5 Some tour representatives wanted to have separate programs, custom built for themselves such as visits to a plant specializing in perforation. This was beyond the scope of the budgeted tour program.

14.6 Because of exhaustive and hectic travel programs to various towns and cities spread over five states, regular group discussions with the group leader and other members could not always be done in motel or hotel settings but rather on the run and on the buses. The active participation of the Group Leader helped resolve critical problem solving, issues, and in generally organizing the group. Eventually, tour members were delegated definite tasks for collecting and compiling information.

15.0 EVALUATION BY TOUR MEMBERS

Leland Cole and Belal Siddique held post-tour individual interviews with each of the participants. Each was asked to comment on his or her impressions of the tour and on benefits they estimate could result through increased productivity and/or increased sales from the addition of new products. During the half-hour interviews, each participant was able to describe those points he or she felt were particularly significant for their company. In addition, each of the participants took the opportunity to express their sincere thanks to CEI and USAID for offering this program, which was not only informative but enjoyable as well.

15.1 Tetyana Afanasyeva - Korvet

Tetyana was very impressed with the size of the U.S. economy. It has a very highly organized management system. For example, the office areas are open, clean and organized. Due to the good transportation system, manufacturing plants can be located outside the cities. In Ukraine, they must be located near the population centers.

Her company is young. It had a goal and has always worked toward that end. She liked the management she saw and the technical and marketing standards.

She was also impressed with the safety standards. For example, at PPG where there is a risk of chemical contamination, there are basins and showers where anyone can get rinsed quickly and easily. In another example, many metal cutting and forming machines have safety locks which help to reduce the possibility of injury. In Ukraine, the operator has to read and remember the instruction manuals before operating the equipment. This is time consuming and not very effective.

She was very interested in the ways the companies are organized, especially in the area of Quality Control. There is peer control of quality control and departments are ranked on quality, cleanliness and on-time performance.

Currently her company uses staples to seal cartons, but these are expensive and time consuming. She saw a new way to perform this operation by using a new glue tape sealer.

Dissemination: There are 30 in her company with whom she will talk to plus over 100 at client companies.

15.2 Ivan Byelosokhov - Vostok

He saw fantastic things and has many new ideas. Eight or 10 companies made a big impression on him.

He found that the U.S. was closer to Ukraine than Western Europe when it comes to ideas of culture and democracy. He was most interested in business ideas and marketing. He wants to develop a marketing program based on U.S. examples.

1. B&J Machinery showed that “serving the customer” is a good market niche.
2. Portion Pac is similar to his carton operation now and he will be able to demonstrate this to is clients.
3. Electronic Liquid Filters, Inc. at La Porte, Indiana was very impressive as were many others.
4. He was impressed with the hot air heating systems in the plants.

5. At SIG Combibloc he saw coatings on cartons that he will try to introduce.
6. He thinks it is a good idea to have one government official on each study tour. He thinks that CEI should do all they can to increase the number of study tours.

Dissemination: He will be talking with about 140 people in his company. He also plans to write an article and to take part in seminars at the Regional Business Assistance Center (RBAC).

15.3 Anatoliy Kogan - Ukrainian Scientific Research

He was impressed with the organization of American companies, especially with marketing. He had wanted to see how it was done, especially the formation of "work groups." He learned that the groups have to be fully interested and committed. The attitude of the worker is most important. He will review his company with the suggestions he has picked up. He will reorganize his company into separate teams to evaluate ideas.

He has identified five U.S. companies who could be clients or joint venture partners. He will possibly be able to make spare parts for some others. He is interested in having CEI or others look for money or investors.

Ukrainian companies are not capable of making product lines like the ones he saw in the U.S. They are too expensive.

He is thinking of providing service for imported equipment.

Dissemination: He plans to write two articles and give a number of seminars and lectures. He will do some of this through the Internet.

15.4 Sergiy Koylo - Electromash

Sergiy has great impressions of the tour. In fact, he completely filled up his notebook with notes, diagrams and charts.

He was surprised to learn that 40% of the U.S. food products use Soya.

In Ukraine they have lower production volumes and higher unit costs. Price is most important and quality suffers. For example, they always look at using cheaper raw materials and not at the product specifications.

In the U.S. they have "Focus Groups" to decrease problems. In Ukraine the decisions are often not the best since they are made from a command structure. In the U.S., responsibility is clearly defined and there is a sense of worker team ownership. He has learned a great deal about reporting systems.

New products: There were many possible new products for his company. One is the clear plastic strips that are used as room dividers when going between different temperature environments. Another is new packaging insulating materials and a third is a cardboard carton insulation layer. He will also install a new hot air heating systems using gas burners.

Dissemination: He will be talking with over 50 people about the tour.

15.5 Vadim Lakiza - Molprom

He really liked Tetra Rex and the production culture. He also liked Electronic Liquid Filters, Inc. (ELF) at LaPorte and their excellent packaging and Food Equipment Manufacturing Corp. (FEMC) and excellent equipment. He also liked the visit to Anthony Thomas. Cleanliness was evident everywhere. He also liked Russell Bundy.

Any money supplied by the U.S. government must go directly to the companies and not through the government.

Most of the collective farms no longer exist and have been replaced with new private farms that do not have the money they will need.

His company may merge with Fasma, a company on the first MTM Study Tour.

His company has a great deal of metal and he will use this to diversify. He plans to make small milk pumps of 500 Kg capacity. He will also make small pasteurization machines and separators. He is certain that he will work with Soya milk.

Dissemination: His wife is the Ukrainian Department of Standardization and this will help him to disseminate the information to about 2000 factories. He has taken 10 video tapes and he will be able to make one good tape.

15.6 Iryna Pesina - Plant Named after Frunze

This program will be extremely important for her company. It had many practical aspects. She liked Russell Bundy and its stamping machines. Her company will be able to make the baking forms with non-stick coatings. In the past they made forms for the bakery industry but they were not successful. They will contact a Russian company that has the non-stick technology.

She also liked the way Russell Bundy refurbished machines and saved money. Her company could also rebuild machines rather than just make new machines.

Her company is currently doing market research on forms for the baking industry. This was the first time she really saw a marketing system at work.

She was very interested in the automatic parts replacement (kanban) system used at Electronic Liquid Filters, Inc. (ELF) at La Porte, Indiana. She also liked that way they had a mission statement and had clearly set out their company goals.

You can go many places to see production equipment, but rarely do you get a chance to see how a company is managed. Many U.S. companies provide continuous education for their workers. The system related directly to the production of the workers. All workers work as a team. The main thing is the management of the marketing and production operations. Most companies concentrate on quality and customers.

She will recommend that her company increase the number of sales representatives and start marketing in adjacent oblasts. They should be able to manage the spare parts inventories in order to keep these costs down. She also wants to computerize their inventory records. The tour also gave her a chance to see the negative side of her company operations including transport, repair and machine building.

At Borden, she did not understand why they discontinued some brands. One product alone generated 85% of their revenue. She will recommend that her company drop non-profitable lines.

She also liked the use of Focus Groups which helped them see how the customers used the products.

Dissemination: She will be talking to 30 people in her company plus 20 others in sales. She also plans to show the video that was taken by Vadim Lakiza and others. In addition, she will contact her friends in at a local Kharkiv radio station and expects to make her report in September when people have returned from their holidays. She will also make contact with her University.

15.7 Viktor Pavlenko - Stankinprom

In the U.S. he saw that advertising was very practical. People are working instinctively based on their past training and experience. They develop what the customer needs. He has filled his notebook with notes and designs. He really liked RA Jones the best where they made sophisticated packaging machines.

New products: He was looking at improving their macaroni machines, biscuit baking equipment and silos which they already build.

Dissemination: He will talk to 100 people in his company and over 100 people in their sister companies.

15.8 Iryna Samuylik, International Marketing Manager - Nargus

The entire trip was tremendously impressive. The U.S. host companies were very well chosen. In Ukraine they don't have anything like this. She saw many new types of packaging including multi-layer materials and coatings. This will provide many new prospects for growth in Ukraine. Many Ukrainian companies are looking for new ways to increase shelf life and packaging is part of the solution.

She especially liked what she saw at SIG Combibloc which was very impressive.

She liked the presentation on marketing. She also found that production is very well organized and she liked the fact that it worked closely with marketing. In the U.S., the companies really care for quality and the customer. This is the only way to survive - both in Ukraine and the U.S. A brand name is also very important.

There are many new product possibilities including the small packages she saw at Portion Pack.

Dissemination: She will talk to 150 people in her company plus her client companies.

15.9 Oleksandr Sereda - TFK Engineering Group

He felt is was a great tour with many new ideas. In fact, he had expected it to be a more relaxed business trip, but found it was quite different and intense.

He felt that the most important thing he learned was the relationship between the company and the employees. The person's qualifications and value to the organization are most important. In addition, automation and quality control are also very important. He was able to see dynamic quality control and statistical analysis. For example, at Ball Metal Food Container Group, quality control is continuous as the welding of the seams on cans are continuously inspected. If they could install such a system in their factory, they could improve the market for their macaroni filters.

He is very interested in high speed inspection machines that check parts using a photo image process. He was also very impressed by the automation system at Keebler and he is interested in making such a system for the Kharkiv Biscuit Company.

He loved the production planning system he saw at R.A. Jones.

Dissemination: He will be talking about the tour to over 100 people in his company and with many client companies.

15.10 Antonina Shcherbak - Experimental Wiring Plant

She was shocked by the U.S. companies. She saw so much! The companies had a "sense of belonging." At each company they knew the company history and know who built it. There is respect for the employee. They are open to employees of all backgrounds. They don't have this in Ukraine.

The companies had tremendous technology. She especially liked RA Jones. She noted that people took very good care of the equipment.

Each U.S. employee had a defined task. She liked how the manufacturing employees worked together and interacted with marketing and design. She also noted that the production machines could be reorganized for new products. This was possible since utilities are located in the ceiling. She found that the volume of output was more a function of the organization than the equipment. The company organization and marketing are most important, not the technology. She will reorganize her plant when she returns. This will include both the direct and indirect functions.

As for new products, her company is capable of building silos and they will seriously work on this. Galvanizing is expensive but they will investigate the use of special paint as an alternate.

Dissemination: There are 250 in her factory with whom she will talk. She will also talk with people at the local business center in her Rayon. She also plans to write an article.

15.11 Mykhaylo Shvartsman - Ukrainian Agro-Service

He has a great many impressions - both cultural and technical. He has gained a great deal of confidence. He has also learned that the greatest key to success is marketing. In his company he does everything. He was impressed with the energy of America.

He saw total harmony in production. In high production areas, his customers could use his high technology equipment to get high quality products. Everything in the U.S. is done for a specific business reason. It is very important to get these concepts in practice at home.

Regarding technology, everyone has their own specific area of expertise. In Ukraine they don't have their own specialties yet. In Ukraine, they need to have something that distinguishes them from their competitors, such as a product, features or service.

His company is looking at plastic machines and products.

He never knew about progress payments and will introduce them. These will increase sales by 5-10%.

He wants to expand his own operations and have a division that uses his equipment. Although this may mean competing with his own customers, he feels this will not hurt sales outside the Kharkiv area.

He must develop his own R&D department. In the Soviet era, product design was done at institutes. Now, most companies do not have their design departments.

Dissemination: He will write 1 or 2 articles for journals with about 7,000 circulation. He will talk to the regional administration about what he learned. He will conduct 3 or 4 company seminars for about 120 people.

15.12 Vasyl Sulima - Extruder

Agriculture in Ukraine is in very bad shape and there are no credits. In addition, farm equipment is rusting. There is a great need to give them high productive technology to feed the people and the animals. This sector could grow rape, high protein animal feeds and vegetable oils.

In the U.S., he feels the people have a high technology system. Moreover, they can start with the highest priority areas. Ukraine needs help from the U.S. government. He will talk with officials in the Oblast and others. Unfortunately, they are from the old system.

The industry can develop any products because they have high capability workers.

Vasyl wants to start an association.

He learned a lot about the organization of a company. For example, he learned that the number of employees is not important - revenue is.

He found that it is important to have a grand name. The company must be honest with its customers in order to create a positive image and to be able to expand. Value works!

The world is a very big market and is not constrained as it is in Ukraine.

Dissemination: In December he plans to speak at the industry congress and will send a copy of the article to CEI. He will also write an articles for Kharkiv journals that will reach about 25,000. He will also talk to about 150 people at the local Institutes.

15.13 Svitlana Vasyltsova, Marketing Manager - Research and Design - Hydraulic Drives

She will need time to assimilate all the information she has gained. She saw different company profiles which she will be able to use in her company. She also saw different techniques of marketing. She saw volume discounts which she liked very much. She was fascinated by the American culture and how they lived and worked. In the U.S. 1/3 of the workers are in marketing. Only 1 or 2 in her firm are in marketing. She learned that companies have to discover what the customer wants.

There were many new products which her company may be able to evaluate.

Dissemination: She will discuss what she learned on the tour to the 107 other members in her company and with at least 40 others. She also wants to give a lecture at her institute.

15.14. Lyubov Volokita - Energosberezheniye

She has too many impressions. The U.S. is a good model for the future. It puts a great stress on quality and service. There is also a great stress on protecting the environment and many people recycle their waste. "The trip gave me confidence to make decisions."

She was interested in automation and on how the companies were organized. This was especially true for the marketing function which is very weak at her company. She saw companies used Focus Groups to deal with the indirect attributes such as price and after sales support.

Every company must have a way to distinguish their company and its products. The benefits and the price are very clearly and independently defined. It is most important that the company make the employees feel a part of the team.

Dissemination: She will discuss the program with about 50 people and expects to speak at 3 or 4 conferences in September and October. There should be about 500 people at each conference.

15.15 Mykola Yemets - Stankinprom

It was a super tour. He was amazed at the cleanliness and the well organized companies. People were very friendly and all the companies were very interesting. He was impressed with the high quality of organization and the well organized production. He will use this information in their operation. The amount of computerization was also impressive. His company needs a line of credit in order to make their larger machines.

He liked RA Jones best where 2 people do the amount of work that 30 do at his company on larger machines. CAD/CAM systems send information directly to the CNC machines. Everything the worker needs is close at hand. In his company they need high quality equipment but must work with what they have.

New products: They will investigate the manufacture of air operated hand tools. They can save labor and energy.

Dissemination: He will talk to about 300 employees at their company.

16.0 RECOMMENDED SHORT TERM MEASURES FOR DEEPER TOUR IMPACT

Tour members benefited enormously from this visit, as can be seen in the exit interviews. Many members were interested in getting follow-up information from the various plants visited, and in exploring technology and financial cooperation with U.S. organizations. They would like to have active CEI participation in one form or the other. A proposal seeking approval for funding a Productivity Center helping Ukrainians is necessary to take full advantage of the tour program.

16.1 CEI should publish a listing of the companies and persons who have participated in the study tour program and distribute it to all the study tour companies. They all have this experience in common and this will provide a way for them to network.

16.2 CEI should develop a pricing presentation.

17.0 LOGISTICS

17.1 Hotel Accommodations

During week ends and dates the study tour program was scheduled for Cincinnati area firms, the tour group stayed at the Vernon Manor Hotel in Cincinnati. This hotel was selected because of the many overall benefits it provided. When the tour traveled outside Cincinnati, accommodations were made as appropriate in various motels. All participants were given double rooms with two beds without gender mixing. All rooms were blocked from making long distance phone calls, and charging food or drinks. Participants were able to make these purchases separately on their own account. Overseas phone calls were generally made by purchasing pre-paid phone cards.

17.2 Meals

a. While in Cincinnati, breakfast was provided at the Hotel Vernon Manor. On many mornings CEI representatives (Dan McKinney, John Kuhn and Lee Cole) were available for interpretation or other assistance. To avoid menu translation and schedule delays, buffet meals were preferred over waitress services, when available.

b. In general, participants received $10 stipends for breakfast, $10 for lunch and $15 for dinner unless meals were provided by CEI. In this way, participants had full control over their meals and CEI kept costs within budget. Weekly meal allowances were given to tour members on Saturday.

c. CEI provided meals on two occasions: lunch on the group's first orientation arrival day at the Vernon Manor Hotel; and the concluding dinner and certificate presentation at the Queen City Club.

17.3 Bus Transportation

The Vernon Manor shuttle bus transported the guests from and to the airport. This service was also available for transporting guests to downtown and other nearby shopping areas. Transportation to tour sites was done with a rented 45-passenger coach from J & J Tours.

17.4 Shopping/Sightseeing

All participants were anxious to shop for friends and family at home. On weekends, many spent their free time shopping. The hotel shuttle bus driver was very accommodating and took them to discount stores in the area. On some occasions (time permitting), the regular tour bus driver would stop for shopping or sight seeing, such as the Dayton Air Force Museum/Imax Theater. Some CEI members helped by shuttling to local attractions like the Cincinnati Zoo and Covington Aquarium. In Chicago, the group visited Sears Tower, boat ride, took a walk around the downtown/Michigan Avenue, and Science Museum where they saw IMAX Theater. These visits in all cases were paid for by tour members, and had a deep impact on their perception of America.

18.0 PARTICIPATING CEI and OTHER ADVISORS

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Activity: Interpretation

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19.0 PARTICIPATING SPEAKERS FROM VARIOUS ORGANIZATIONS.

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APPENDICES

A DETAILED PROGRAM SCHEDULE

[**All times are local times**]
Transport provided by J&J Tours of Cincinnati except as noted.

Monday, July 03:	
19:10	**Group arrives Cincinnati (Delta 87) from Frankfurt** (**Vernon Manor** provide Transport to Hotel)
21:30	Dinner: Vernon Manor
Tuesday, July 04:	
0700-08:30	Breakfast at Hotel Vernon Manor
08:30-08:45	**Welcome and Introduction (Lee Cole)**
08:45-09:30	**Study tour overview (Belal Siddique)**
09:30-10:15	**Tour objectives and Post-Tour Reports and Responsibilities (Jim Silberman)**
10:15-10:30	Break
10:30-11:00	**Orientation to City of Cincinnati**
11:00-12:00	**Tour Logistics (Lee Cole and Belal Siddique)**
12:30-14:00	LUNCH at Vernon Manor
14:00 - 16:00	Tour of the **Downtown (Shuttle Bus)**
19:00-20:00	Dinner
Wednesday, July 05:	
08:30	Bus Departs hotel Vernon Manor
09:00-11:00	**B&J Machinery**, Cincinnati
12:00-13:00	Lunch
14:00-16:00	**LaRosa Frozen Pizza,** Cincinnati.
Thursday, July 06:	
08:30	Bus Departs hotel Vernon Manor
09:00-11:00	**PPG Industries,** Milford, OH
12:00-13:00	Lunch
14:00 - 16:00	**Portion Pac,** Mason, OH.
16:30	Depart for Chicago
19:00-20:00	Dinner on way to Chicago
22:30	**(Stay the night in Chicago)**
Friday, July 07:	
08:00	Bus Departs hotel
9:00-11:00	**Tetra Rex,** Buffalo Grove, IL
12:00-13:00	Lunch
14:00 - 16:00	**APV Crepaco, Chicago**
19:00-20:00	Dinner in Chicago
20:30	**(Stay the night in Chicago)**
Saturday, July 08:	
08:30	Bus Departs Vernon Manor

9:00-12:00	**Visit Various City Attractions**
19:00-20:00	Dinner in Chicago
20:30	**(Stay the night in Chicago)**
Sunday, July 09:	**FREE DAY (Check out of Hotel at due time and Stay in Chicago Whole Day)**
17:00	Depart Chicago
19:00-20:00	Dinner at Michigan City, IN
20:30	Drive Off to LaPorte, IN (**Stay the night in LaPorte)**
Monday, July 10:	
08:30	Bus Departs Hotel
09:00-11:00	**Electronic Liquid Fillers,** LaPorte, IN
12:00-13:00	Lunch
15:00-17:00	**Dunkley Intl,** Kalamazoo, MI
19:00-20:00	Dinner at Ann Arbor, MI
20:30	Drive Off to Willard (**Stay the night in Willard)**
Tuesday, July 11:	
08:30	Bus Departs Hotel
09:00-11:00	**Burma Farms.** Willard, OH
12:00-13:00	Lunch
15:00-17:00	**Amber Milling,** Huron, OH
17:30	Drive Off to Cleveland
20:30-21:30	Dinner (**Stay the night in Cleveland**
Wednesday, July 12:	
09:00	Bus Departs Hotel
10:00-12:00	**FEMC,** Cleveland, OH
12:00-13:00	Lunch
15:00-17:00	**Gerber & Sons,** Baltic, OH
17:30	Drive Off to Columbus
20:30-21:30	Dinner (**Stay the night in Columbus**)
Thursday, July 13:	
08:00	Bus Depart Hotel.
09:00 11:00	**Anthony Thomas Candy**, Columbus, OH
12:00-13:00	Lunch
14:00-16:00	Free Time
19:00-20:00	Dinner (**Stay the night in Columbus**)
Friday, July 14:	
08:00	Bus Depart Hotel
09:00-11:00	**Borden Company**, Columbus, OH
12:00-13:00	Lunch
14:00-16:00	**AC Humko**, Columbus, OH
16:30	Depart for Cincinnati
Saturday, July 15:	
08:30	FREE TIME
13:30	Bus Depart
14:00-16:00	**Jungle Jim**
Sunday, July 16:	
10:30	FREE TIME

Monday, July 17:

08:00	Bus Departs Vernon Manor Hotel
09:00-11:00	**Dupps Co.,** Germantown, OH
12:00-13:00	Lunch
14:00-:16:00	**Cargill,** Dayton, OH
19:00-20:00	Dinner (**Stay the night in Dayton**)

Tuesday, July 18:

08:30	Bus Departs
09:00-11:00	Air Force Museum, Dayton.
12:00-13:00	Lunch
13:30	Depart for Urbana
14:30-16:30	**Russel Bundy,** Urbana, OH
16:30	Depart for Columbus
19:00-20:00	Dinner (**Stay the night in Columbus**

Wednesday, July 19:

08:30	Bus Departs Hotel
09:00-11:00	**Combibloc,** Columbus OH.
12:00-13:00	Lunch
14:00-16:00	**Ball Container,** Columbus, OH
16:30	Depart for Cincinnati

Thursday, July 20:

08:30	Bus Departs Vernon Manor Hotel
09:00-11:00	**Husman Snack**, Cincinnati
12:00-13:00	Lunch
13:00-14:00	**RA Jones**, Covington, KY

Friday, July 21:

08:30	Bus Departs hotel Vernon Manor
9:00-11:00	**Keebler,** Cincinnati
12:00-13:00	Lunch
14:00-16:00	**Hubert Distribution,** Cincinnati
18:30-21:30	Farewell Dinner/Graduation

Saturday, July 22:

08:00-13:00	**EXIT INTERVIEWS**
Sunday, July 23:	**GROUP FLIES BACK TO UKRAINE**

B. BRIEF DESCRIPTION OF THE EQUIPMENT COMPANIES

1. Electromash

Providing flour milling systems.

Since its establishment in 1959, Electromash; has developed and produced over 100 models of equipment for special electric engineering processes, including: winding machines and stator manufacturing lines, electric motor assembly lines, equipment for impregnation and drying of windings, presses and rotary production lines for other materials, etc. In 1993, the plant began production of milling systems.
In March 2000, the plant was acquired by the powerful engine pistons maker Avtramat. Electromash and Avtramat have the same distribution, marketing and production system. The company is in the process of making equipment for small farmers which will be distributed through their parent company Avtramat.
The company provides the following products:

- Flour milling systems
- Dehusking
- Grinding
- Sieving
- Transporting machines in an automated complex

Besides wheat and rye, the mill is capable of grinding, after a quick re-adjustment, buckwheat, peas, salt, sugar (to powder), dried fruits, soft minerals, etc.

The pin method of grinding used in the mill which gives this equipment a number of advantages:

- wider range of milled products
- higher reliability
- easy maintenance
- milling possible at temperatures below 0 C
- milling process is automated and does not require constant attention of operator

The plant gives 1 year warranty and after sales service.

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2. Energosberezheniye

Providing energy saving frequency converters.

Energosberezheniye was founded in 1995 under the initiative of Prof. Victor Barsky, Ph.D., on the basis of developments of private company Novaya Tehnika (owned by Prof. Barsky). Modern computer facilities and membership in IEEE help them collect information worldwide, including specialist literature from the U.S.

Energosberezheniye frequency converters are recommended for installation at utility plants (boilers) by a special conference of the Ukrainian government. Energosberezheniye products have a potentially huge market as the utility systems in Ukraine which need thorough restructuring.

The company provides the following:

Energy-saving frequency converters for pumps,
Centrifuges,
Smoke exhausts (induced-draught fans),
Beet slicing machines.

Frequency converters with controlled electric drives are capable of effecting 30-50% energy savings and 20-50% water savings in the technological processes in meat, dairy, confectionery, sugar, oil, cereal, and alcoholic drinks production.

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3. Experimental Wiring Plant
Providing equipment for the food processing and energy sectors.

The Experimental Electrical Equipment Plant was founded in 1972 to manufacture various electrical equipment for the Ministry of Energy of the former USSR (boxes for cables, equipment to lay cable lines, installations to service various types of transformers (UBM, Iney, Sukhovey, etc.), autohydrolifting machines (up to 28 m), cable modules for nuclear power plants, drilling installation pits for electric line supports (ports).

In 1995 the plant was privatized and it has become an open joint stock company and started manufacturing machines for the food processing industry that were designed by Stankinprom.
Both the products for the energy sector and for the food-processing industry are in demand in Russia, Moldova, Kazakhstan, Lithuania, etc. The plant is the only manufacturer of hermetic cable modules for the NPP.

The company currently produces the following machines for the food processing industry:
Flour mills
Buckwheat processing equipment
Fodder plants
Silos

The company currently produces the following machines for the energy industry:
Boxes for cables
Equipment to lay cable lines
Installations to service various types of transformers,
Autohydrolifting machines (up to 28 m),
Cable modules for Nuclear Power Plants,
Drilling installation pits for electric line supports (ports).

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4. Extruder Ltd.
Providing extruding machines for vegetable oils.

Extruder has manufactured and sold over 1000 pieces of extruding equipment for production of vegetable oils since its foundation in 1991. During its time, the equipment has been upgraded constantly (12 times). Extruder; is a regular participant at food processing trade fairs, having exhibited its equipment at 131 trade fairs over the last 5 years. In September 1998 a joint Ukrainian-Chinese venture was created in Taiyuan', Shansi province. The plant is beginning to produce equipment, and has a capacity of 1000 machines per year. Market share: 70% of sales go to foreign countries: Poland, Belarus, southern and central regions of Russia, the Baltic states, Lebanon and Cameroon. Extruder; equipment is now being introduced in the Urals region in Russia.

The company provides the following:
- Press extruders
- Pumping devices
- Grain crushers

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5. Plant named after Frunze
Producing perforated sieves for the food processing industry.

The firm was founded in 1885 by a Belgian industrialist Shapara. The factory produced perforated sieves used by food producers for different stages of grain processing: cleaning, crushing, sorting, dehusking and drying. The enterprise remained faithful to serving agricultural sector after the revolution and nationalization, growing to become the largest producer of perforated materials in the USSR. Before 1992, it employed 350 people. In 1996 the enterprise was reorganized as a joint stock company.

The company provides the following products:
- Perforated metal sheets for grain processing machines, mills, formula feed machines;
- Brass sieves for centrifuges at sugar plants;
- Trays for bread baking, pasta drying; bread baking molds

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Website at: www.frunze-perf.com.ua

6. Korvet
Providing corrugated cardboard and other packaging materials.

The company started its operations as a manufacturer of corrugated cardboard boxes and pallets. By the end of 1998 output reached 30,000 boxes a month. In 1999 other products (1-3 kg paper bags, folders) were added to the existing range. Output reached 50-60,000 corrugated boxes/month and 50, 000 cardboard boxes/month. Later, the company began trading in paper, cardboard, scotch tape, etc. The production equipment (hydraulic) is capable of doing single operations and each operation is manually operated to complete the process.
Korvet buys laminated cardboard from Western Ukraine. They have additional capability to print 3 colors on packages. The organization of the manufacturing area is well laid out for making packages.

The company provides the following products:

-Corrugated cardboard
-Cardboard boxes
-Paper packaging and envelopes, folders;
-Cutting of paper and cardboard for various size rolls;
-Sales of corrugated cardboard, boxboard, packaging paper, kraft paper, electrical pressboard, binders board, scotch tape, etc.

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7. Molprom
Providing milk processing equipment.

Molprom started in 1980 and in 1985 built with their own money their building. In 1990 they became a leasing enterprise and in 1994 were reorganized as a joint stock company (10 shareholders).

Because collective farms collapsed, Molprom; went from 50 people in 1997 to 15 and now concentrates on repair and renovation of farm machinery. Molprom therefore decided to manufacture milk processing equipment in order to make final products.

The company provides the following:

Equipment and spare parts for the dairy industry:
Production of dairy products 150; 5 tons/day capability;
They are presently being certified to produce milk, butter and cottage cheese.

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8. Nargus
Providing packaging for candy and dairy.

Confectionery factories in Ukraine need 7,500 tons of candy wrappings a year. There is a need for ice-cream packaging in the amount of 23,000 tons a year. Nargus satisfies 1% of the flexible packaging market. Other national manufacturers 150; 15%, 84% of packaging is imported. 80% of products are sold on the domestic market.

Nargus packaging is used for candy, butter, margarine, cottage cheese, ice-cream by food manufacturers in Kharkiv, Kiev, Donetsk, Luhansk, Dnepropetrovsk, Poltava, Zaporizhia, Odessa, Khmelnytskiy, and others. Outside Ukraine, Nargus fulfills contracts for manufacturing colored candy wrappings for companies in Russia and Turkmenistan. Nargus is the first company in Ukraine to provide candy wrappings with paraffin coatings.

The company provides the following:
- Flexible packaging for confectionery products;
- Packaging for dairy products;
- Packaging design services.

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9. Stankinprom
Providing a wide range of flour mills.

Ukrorgstankinprom; was founded in 1952 as the leading design and experimental institute which was responsible for supplying the equipment and tool manufacturing industry of the USSR with plans and specifications. In 1992 the institute was reorganized into a leasing enterprise Ukrorgstankinprom and in 1994 the institute became a closed joint stock company. At present, the company has design, development and manufacturing capability and produces products from concept through sales.

Flour roller mills; Kharkovchanka; are designed to produce high-grade and first-grade flour from wheat.

Product line:
Kharkovchanka includes a group of product modifications designed to produce sift and peeled flour from rye, and models for macaroni flour and second-grade flour production. Rolling mills; Kharkovchanka; have been rewarded with many diplomas and medals at international exhibitions.
The construction of mills has been granted patents of Ukraine.

The company provides the following:
- Flour mills Kharkovchanka range from 200 kg to 2,000 kg per hour;
- Production lines for production of cereals from wheat, barley, peas, millets;
- Production lines for production of cereals from buckwheat.

Mills strengths include:

The widest range of capacity from 5 to 500 tons of grain per 24 hour;
Uniquely high-level of high-grade flour output to 65% with total output to 75%;
Simplicity in operation, grain processing is completely automatic;
High level of grain sorting;
Modular design;
Special treatment of rolls that allows raising quality of grinding, percentage of flour output, and durability of grinding system;
Short investment pay off period from 6 to 12 months depending on the mill modification);
Mills are manufactured in accordance with individual customer requirements for specification, layout and output characteristics;
Computer system is optionally available to manage and control milling technological process, monitor and account processed grain, produced flour, and consumed energy.

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10. TFK Engineering Group
TFK Engineering Design and manufacture of food processing equipment.

This firm was founded in 1993 and now competes with Italian pasta die producers. TFK has a unique software for designing biscuits patterns, capability for generating any pattern needed by their biscuit clientele. Their dies are made of stainless steel and brass, with special coatings. The company has a significant percent of the Ukrainian and Russian market for biscuits forming rotors, and for pasta dies. TFK rotors and dies have been sold in Russia, Turkey and Poland (a Swiss manufacturing plant).

The company provides the following:
Equipment for pasta production: pasta presses, vibrating dryers, drying towers; dies for pasta and biscuits production; forming rotors for biscuits production; non-standard complex fittings and spare parts for food manufacturing equipment.

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11. Ukrainian Agro Service
Providing processing equipment for flour, cereals, pasta, etc.
This firm started in 1997 and now employs 105 and sales have more than doubled between 1998 and 1999.
The firm has a wide range of food processing machines including flour milling machines and a pasta press.
The firm has its own direct sales force, but in 2000 plans to set up a network of sales representatives in Russia.

The company manufactures the following:

Complete cycle equipment for flour and cereals dehusking machine,
mini-mill,
sieving machine,
aspirator,
machine for sealing filled sacks pasta press;
smoke generator for smoking chambers;
fish and meat products;
machine for sealing filled sacks.

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12. Ukrainian Scientific Research

Providing custom food processing equipment designs.

This organization was founded in 1930 and currently employs 185. The advantages they enjoy against competing products are that they have a good patent position and have highly qualified personnel for agriculture and commerce. At present they are conducting negotiations to license their patents. A one year warranty is given on small equipment and a 2 year warranty on large equipment. In addition, they provide service and maintenance and training to their customers.

The company provides the following:

Pasteurizing installations and coolers - 4% of sales
Evaporating installations for juice concentrates - 9%
Installations for pressing, refining, deodorizing of oils and#150; 5%
Individual developments (designs) 82%

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13. Vostok

Providing corrugated cardboard and equipment.
This is a fast growing company that specializes in corrugated cardboard, containers and equipment. They manufacture approximately 3 million square meters of corrugated cardboard per year.; Employment in early 2000 was 87.
The company has strategic business partners in Luhansk, Lviv and Kharkiv.

The company provides the following:

Corrugated containers;

Corrugated cardboard;
Equipment.

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14. Research & Design - Hydraulic Drives (NIIGIDROPRIVOD)
Providing hydraulic drives, pneumatic and filtration equipment.
This is a 50 years old Scientific Research Institute that specializes in hydraulic drives, pneumatic and filtration equipment. They are now a limited company manufacturing hydraulic drives, pneumatic and filtration equipment and providing services to metallurgical, oil and gas, coal industries in Russia, Belarus, Ukraine and other countries of the ex-USSR. Employment in early 2000 was 87.
The company has strategic business partnership with Parker Hannifin Corporation.

The company provides the following:
Hydraulic Drives;
Pneumatic and Filtration Equipment;
Electric Indicators, Detection Equipment and various Regulators.

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